

Control with Care

*The value of soft controls in the management control system
of the Dutch Defence organization*

Layout: Merel de Hart

Printed by: Bureau Repro, NLDA, Den Helder

ISBN: 9789088920769

© Jacqueline Heeren-Bogers

All rights reserved. Without limiting the rights under copyright reserved above, no part of this book may be reproduced, stored in or introduced into a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the written permission of both the copyright owner and the author of the book.

This dissertation was financially and factually supported by the Netherlands Army Command/ Ministry of Defence. The views and opinions in this dissertation are and remain solely the responsibility of the author and do not necessarily reflect those of the Ministry of Defence.

Control with Care

*The value of soft controls in the management control system
of the Dutch Defence organization*

Zorgvuldige beheersing

*De waarde van soft controls in het management control systeem
van de Nederlandse Defensie organisatie*

Proefschrift

*ter verkrijging van de graad van doctor aan de
Erasmus Universiteit Rotterdam
op gezag van de rector magnificus*

Prof. dr. R.C.M.E. Engels

en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op 18 oktober 2018 om 13.30 uur

door

Jacoba Johanna Dimphna Bogers

geboren te Breda

Doctoral Committee

Supervisors:

Prof. dr. S.P. Kaptein

Prof. dr. J.M.M.L. Soeters

Other members:

Prof. dr. L.C.P.M. Meijs

Prof. dr. F.G.H. Hartmann

Prof. dr. R.J.M. Beeres

***“I do not impair the interest of the Dutch Defence organization
and I set an example in attitude, appearance and behaviour.
I deploy the resources entrusted to me in a responsible way
and use them carefully and legitimately.”***

Code of Conduct Ministry of Defence, 2007

(Translation JHB)

Contents

Contents

Preface and acknowledgements	15
1 Context, aim and questions	19
1.1 Reasons for this study	19
1.1.1 Defence organizations	19
1.1.2 The Dutch Defence organization	20
1.2 Introduction to management control	22
1.3 Culture and cost awareness	25
1.4 Aim of this study and research questions	26
1.5 Academic and practical relevance	27
1.6 Outline dissertation	27
2 Theoretical framework	31
2.1 Careful employee behaviour	31
2.2 Financial and material resources management	32
2.2.1 Financial management	33
2.2.2 Material resources management	33
2.3 Military professional culture	34
2.3.1 Organisational culture	34
2.3.2 Military culture	35
2.3.3 Subcultures within the military	38
2.4 Cost awareness	39
2.5 Management control	41
2.5.1 Recent developments in management control research	42
2.5.2 Categorization of controls	42
2.5.3 Hard and soft controls	43
2.5.4 Types of hard controls	45
2.5.5 Types of soft controls	48
2.6 Subconclusion theoretical framework	50
3 Methodology	55
3.1 Research design	55
3.2 Quantitative research methods	56
3.2.1 Sources of information	56
3.2.2 Sample selection	56
3.2.3 Operationalisation	59
3.2.4 Quantitative methods	66

3.3	Qualitative research methods	67
3.3.1	Sample selection interviews	67
3.3.2	Qualitative data analysis	68
3.4	Quality of the study	69
3.4.1	Reliability	69
3.4.2	Validity	69
4	Exploring management control practices	73
4.1	Interviews financial specialists and (deputy) commanders	73
4.1.1	Problems in financial and material resources management	74
4.1.2	Causes of problems in financial and material management	75
4.1.3	Improvement by hard controls	77
4.1.4	Improvement by soft controls	79
4.1.5	Cost awareness	81
4.1.6	Organizational culture	83
4.2	Analysis of open questions in survey	84
4.2.1	Hard controls	85
4.2.2	Soft controls	87
4.3	Preliminary statistics	89
4.4	Subconclusion exploring the management control practices in the Dutch Defence organization	91
5	Hard and / or soft controls?	97
5.1	Hypotheses	97
5.2	Findings	102
5.2.1	Descriptive statistics and Pearson correlations	102
5.2.2	Analyses of variance	103
5.2.3	Mediation effect cost awareness	104
5.2.4	Regression analyses financial management	104
5.2.5	Regression analyses material resources management	107
5.3	Subconclusion hard and/or soft controls	109
6	The impact of specific hard and soft control	113
6.1	Hypotheses hard controls	113
6.1.1	Segregation of duties	114
6.1.2	Internal auditing	115
6.1.3	Procedures and rules	117
6.1.4	Recording	119
6.1.5	Risk analysis	120

6.2 Hypotheses soft controls	122
6.2.1 Clarity	122
6.2.2 Congruency	123
6.2.3 Feasibility	125
6.2.4 Supportability	126
6.2.5 Transparency	127
6.2.6 Discussability	128
6.2.7 Sanctionability	130
6.3 Findings	131
6.3.1 Pearson correlations hard and soft controls	131
6.3.2 Linear regression analyses hard and soft controls	135
6.3.3 Curvilinear regression analyses hard and soft controls	136
6.3.4 Delving deeper into the curvilinear relationships	141
6.4 Subconclusion impact of specific hard and soft controls	143
7 Comparing the individual with the unit level perspective	149
7.1 Avoiding the common source bias	149
7.2 Hypotheses	152
7.3 Methodology	154
7.3.1 Selected scope of research	154
7.3.2 Preliminary tests for multilevel-research	155
7.3.3 Validity and reliability	155
7.3.4 Frequencies dependent variables based on audit reports	157
7.4 Comparison auditor and employee opinion	159
7.5 Regression analysis using employee opinion	161
7.6 Regression analysis using auditor opinion	164
7.7 Subconclusion comparing the individual and the unit level perspective	167
8 Conclusion and discussion	171
8.1 Conclusion	171
8.1.1 Answering sub-question 2	171
8.1.2 Answering sub-question 3	173
8.1.3 Answering sub-question 4	174
8.1.4 Answering sub-question 5	175
8.1.5 Answering the central research question	176
8.2 Limitations and avenues for further research	177
8.2.1 Focus of the study	177
8.2.2 The methods and sources used	177
8.2.3 The measurement of scales	178
8.2.4 The sample population	179
8.3 Practical implications: towards a system of hard and soft controls	179

References	182	
Summary	206	
Samenvatting (summary in Dutch)	213	
Appendices	218	
APPENDIX I	Reports Court of Audit	219
APPENDIX II	Topic list semi-structured interviews	221
APPENDIX III	Measurement, scales, factor and reliability analysis	223
APPENDIX IV	Specimen archival audit report	227
APPENDIX V	Overview of interviewees	231
APPENDIX VI	Datamatrices financial specialists	233
APPENDIX VII	Datamatrix (deputy)commanders	238
APPENDIX VIII	Results preliminary tests multilevel analysis	241
APPENDIX IX	Checklists auditor reports	245
APPENDIX X	Regression models using employee opinion	251
APPENDIX XI	Regression models using auditor opinion	253
About the author	257	

List of Figures

Figure 1-1	Outline dissertation	28
Figure 2-1	Theoretical framework	51
Figure 5-1	Conceptual model	101
Figure 5-2	Soft controls strengthen the relation between military culture and material resources management	109
Figure 6-1	Curvilinear relation between segregation of duties and material resources management	141
Figure 6-2	Curvilinear relation between sanctionability and material resources management	142
Figure 7-1	Hierarchical levels Dutch Defence organization	151
Figure 7-2	Analyses using different dependent variables	151
Figure VIII-0-1	Formula ICC(1)	243
Figure VIII-0-2	Formula NG	244
Figure VIII-0-3	Formula ICC(2)	244

List of Tables

Table 3-1	Quantitative data structure	55
Table 3-2	Sample information	57
Table 3-3	Response per organization part	57
Table 3-4	Overview survey questions per group of respondent	58
Table 3-5	Response per type of questionnaire	59
Table 3-6	Translation and remaining items cost awareness	63
Table 3-7	Questions military professional culture	64
Table 3-8	Proxy military professional culture	65
Table 4-1	Problems financial and material resources management	74
Table 4-2	Causes problems in financial and material resources management	76
Table 4-3	Improvement financial and material resources management by hard controls	78
Table 4-4	Improvement financial and material resources management by soft controls	81
Table 4-5	Relation between cost awareness and financial and material resources management	83
Table 4-6	Organizational culture in and of the military	84
Table 4-7	Frequency of responses mentioning hard controls	85
Table 4-8	Frequency of responses mentioning soft controls	88
Table 4-9	Analyses of variance between respondents	90
Table 5-1	Descriptive statistics and Pearson correlations financial management (N=220)	102
Table 5-2	Descriptive statistics and Pearson correlations material resources management (N=179)	102
Table 5-3	Regression analyses financial management	105
Table 5-4	Regression analyses material resources management	107
Table 6-1	Pearson correlations and descriptive statistics financial management	133
Table 6-2	Pearson correlations and descriptive statistics material resources management	134
Table 6-3	Regression analyses hard and soft controls on resources management	135
Table 6-4	Curvilinear regression hard and soft controls on resources management	138
Table 6-5	Cleaned curvilinear regression hard and soft controls on resources management	140
Table 6-6	Overview results linear and curvilinear regression	144
Table 7-1	F-ratio ANOVA, ICC(1) and ICC(2)	155
Table 7-2	Results of principal component and reliability analysis	157
Table 7-4	Degree of variation between auditors and employee opinion	160
Table 7-5	Comparison of auditor and employee opinion	160

Table 7-6	Pearson correlations at individual level based on employee opinion	162
Table 7-7	Regression analyses at individual level based on employee opinion	163
Table 7-8	Pearson correlations at individual level based on employee and auditor opinion	164
Table 7-9	Regression analyses at individual level based on employee and auditor opinion	165
Table 7-10	Comparison analyses based on employee versus auditors opinion	167
Table VIII-0-1	Sample units Dutch Defence organization	242
Table VIII-0-2	F-ratio ANOVA, ICC(1) and ICC(2)	243

Preface and acknowledgements

Preface and acknowledgements

In the summer of 2009 the chairman of our department at that time and later the second supervisor of this PhD thesis, professor Sjo Soeters, was engaged in a practical research project conducted by bachelor students, cadet-officers at the Netherlands Defence Academy. This research project was triggered by reports that had been published by the Netherlands Government Court of Audit regarding financial and material resources management in the Dutch Defence organization. Sjo Soeters awakened my interest for this project and we discussed how this topic could be developed into a useful and interesting PhD project. Since I had been an auditor in the Dutch Defence organization, I recognized the problems regarding the management of the material and financial resources as described by the Court of Audit. Based on this work experience I was under the strong impression that more or stricter hard controls are not enough to improve the quality of managing the financial and material resources in the military organization. It felt only natural that now the time had come for me to delve deeper into other kinds of control, their effect on hard controls and consequently into financial and material resources management in the military organization as a whole.

On July 13, 2009 at 00.47 pm I sent an e-mail to professor Muel Kaptein at the Rotterdam School of Management to assess the feasibility of such a PhD research project as well as his willingness to get involved in such an endeavour. I knew Muel Kaptein is a renowned specialist in this particular field of study. Already at 01.30 pm I found a positive response in my mailbox. Due to the holiday season, it lasted until September, 18 before the three of us got together for the first time.

This was the start of an intensive, meaningful, sometimes frustrating but always constructive cooperation. In my eyes, the two supervisors were perfectly complementary to each other. Muel, as you were always focused on the content, you played most of the time the role of the “devil’s advocate”: testing my arguments, challenging my choices and thereby keeping me alert. Sjo, besides our mutual interest in military culture, you supported me with your excellent coaching skills. You did not only guide me through the writing process of this thesis, you also picked me up and kept me going when I did not see the light at the end of the tunnel. Looking backwards now, I realize even more that you were both of fundamental importance in conducting this research project and writing this dissertation. Oftentimes we chose to discuss the progress of the research project while enjoying a lunch or coffee at the Hotel Dordrecht. These meetings hold special memories to me, for which I am deeply grateful.

I would also like to thank the students who chose to align the topic of their bachelor theses with my research project. Joost van Nunen and Elma Boute, thank you for the confidence you had in me as your supervisor. Special thanks go out to Thimo Dalm and Annette van Winsen because the output of their theses was of direct relevance for this dissertation. I wish you all good luck in your further careers.

I am very grateful for the overall support of the Dutch Defence organization. More specifically, Hans van Lamoen and Ramses Groeneveld, “friends of the soft controls”, for helping me with the defence specific elements of the research design of this project. Also the 17 financial specialists and the 6 (deputy) commanders of the organisational parts of the Dutch Defence organisation, I had the privilege to interview, should not go unmentioned. Besides the 600 respondents of the survey, they were a basic prerequisite for the success of this research project.

This PhD thesis would not have had a qualitative impulse without Rokus van den Bout from the Semi Static Archive of the Dutch Defence organization in Rijswijk. In about 11 visiting days, numerous e-mails and without question just as many hours of preparation, he helped me to collect the original audit reports related to the units in my survey samples that were analysed in Chapter 7. Thank you for your guidance in the wonderful world of archiving.

I would also like to thank the colleagues from the Faculty of Military Sciences. A few of them should be given greater prominence: My roommates, Esmeralda and Koen, for the inspiring and pleasant working environment. The colleagues of the subsection Defence Economics for their interest in my research and the fun we have together. Robert and Myriame, for rescheduling my teaching load and granting me extra hours, thereby giving me the opportunity to finish this PhD thesis. And Manon, Tessa and André for being my statistical helpdesk.

I would also like to extend some words of thanks to my personal assistants during the ceremony, Gabby and Mark, for our long lasting and close friendship which originated in being colleagues at the Dutch Defence organization. Mark, I will never forget that, even though our contact is not always as frequent as we would like to, you were always there for me, in good as much as in not so good times. Gabby, our - agenda's permitting - weekly sports activities and the cup of tea afterwards is most valuable to me. Of course because we try to stay in shape, but so much more because I can share everything with you.

Naturally, I would also like to thank my father and mother, Leo and Loes, without whom my development into who I am today would not have been the same. We have always been very close to each other because we learnt too soon in life that nothing can be taken for granted. With the illness and dying of my sister Nancy, almost 21 years ago now, we realized that you have to cherish every single day. Sadly enough, during this PhD period my father fell seriously ill and died within six months' time, thereby reducing our family by half. Dear mom, we will never forget our loved ones because they live on in us; in our choices, in our actions, in who we are.

And last but certainly not least, I would like to thank my husband Rob and our son Ryan for their infinite patience. Year after year, I tried to minimize the effect of my research on our family. Most of the time, I worked on my dissertation when you were at school, at work or at the athletics track for training. But especially the last year, I had to skip some competitions

and other family events to give the necessary impetus to finalise my thesis. I place high value on the way you dealt with that; you never bothered me with complaints or incomprehension. Rob, without your loving support and your unquestionable faith in me, I would have never been able to accomplish this project. Ryan, I hope to have served as an example for you: everything can be achieved when you are willing to learn, to work hard and never give up.

Jacqueline Heeren,

Tilburg, June 2018

1

1 Context, aim and questions

The first chapter discusses the rationales and backgrounds of the main research objective of this dissertation, which is:

To determine the relative influence of (the various categories) of hard and soft controls on the careful use of financial and material resources in the Dutch Defence organization.

After explaining the reasons for this study, a theoretical introduction to the subject of management control, more specifically the distinction between hard and soft controls, will be provided. Then the aim of this study will lead to an overview of the research questions and a description of the academic and practical relevance of the study. An oversight of the dissertation will be provided in the final section.

1.1 Reasons for this study

Public sector organizations fulfill goals and tasks that societies regard as important but that are not likely to be done, or cannot be done for reasons of principle, by profit organizations. Most of the times public sector organizations perform tasks that produce so-called collective or public goods. General economic theory makes a difference between two categories of goods: ordinary private consumption goods [...] which can be parcelled out among different individuals [...] and collective consumption goods [...] which all enjoy in common in the sense that each individual's consumption of such a good leads to no subtraction from any other individual's consumption of that good (Samuelson, 1954: 387). Thus, these collective or public goods are goods or services that everyone can use without reducing the availability to others, and from the use of which no-one can be excluded. Examples are the provision of clean air and water, lights in the streets, and the administrative infrastructure that ensures the safety of our food as well as the quality of education and health care. Other examples are law enforcement and justice.

It is deemed increasingly important that properly managing public sector organizations is a prerequisite in modern societies. Tax payers are not willing to accept less than that. This includes both financial and content-related management. Public sector organizations need to do their job properly, while using budgets, manpower and material resources in an appropriate manner. This implies no overspending, no corruption or nepotism, no inefficiencies, no waist, no careless use of scarce resources or other organizational misbehaviour.

1.1.1 Defence organizations

A specific category of public sector organizations are defence organizations, i.e. military organizations or armed forces. They are akin to police and other public security organizations

but they may be considered a special category, a category of its own. Defence organizations ensure the production of perhaps the most collective and historical of all collective goods, i.e. public security. This regards the defence of a nation's – and its allies' - territorial area(s) including borders, the protection of its interests internationally, as well as the protection of citizens who are threatened by large-scale violence. As an instrument of last resort, defence organizations may also be deployed to help people who have become victim to large-scale natural or man-made disasters.

One can maintain that there are similarities and differences between military organizations and organizations in general (Weber and Gerde, 2011: 596). In the basic structures and dynamics they are quite similar. In terms of structure and division of labour, the modern CEO functional staff is based on the German General Staff from the first half of the twentieth century (Traxler, 1961) and the structure of defence organizations in peacetime can be labelled as divisional in terms of Mintzberg's synthesis of organizational configurations (Mintzberg, 1983).

The basic components that make the military unique (Huntington, 1957: 61) are service to the state, a deep sense of loyalty and perhaps more importantly, the expertise in the application and management of violence. The U.S. Army Operations manual (Department of the Army, 1993: 1-2) describes the values shaping military identity as "proper subordination to political authority, loyalty, duty, selfless service, courage, integrity, respect for human dignity, and a sense of justice". Taking everything together, military organizations are specific because of their direct connection with and subordinate position towards politics and government, the permanency of their goals and tasks, the multiplicity of deployments in a national and international context, their essentially bureaucratic-legal functioning and - the very essence – the management of violence in life-threatening environments (Soeters, van Fenema and Beeres, 2010: 1-7).

1.1.2 The Dutch Defence organization

The central focus of this study is the Dutch Defence organization which comprises seven branches of service. The Central Staff prepares and formulates the national Defence policy. The four armed forces services – Army, Navy, Air Force and Marechaussee - ensure that military personnel and material are mission-ready, which means that personnel and systems are capable of conducting their military tasks on short notice. The Joint Support Command and the Defence Materiel Organisation support the armed forces services by providing products and services (Ministry of Defence, 2017).

Since the early 1990s, the organization has been subject to change. Prior to the fall of the Soviet Union, the main task was to defend national and alliance territories and borders. Large numbers of units – mainly land forces – were deemed necessary to fulfil that task. After 1990, at the end of the Cold War, the Dutch Defence organization was confronted with the challenge to transform its rather static structure into a smaller and more effective armed force that would be deployable with improved flexibility in crisis response operations

(Waard, 2010; Dandeker, 1994). This transformation came along with the abolishment of the conscript system and the introduction of the All-Volunteer Force.

In terms of financial means for the military, a gradual decrease – as a ‘peace dividend’ - has resulted from a series of budget cuts over the last 20 years. In real terms, Dutch Defence expenditures decreased by as much as 15% over the past two decades (Beeres, Bakker, Bollen and Westerink, 2012: 385). However, recent developments such as the emergence of ISIS, the growth of the refugee crisis and the lack of stability at the Eastern borders of the EU, have convinced political parties that such budget cuts need to come to an end, and need to be reversed in fact.

Despite the current positive climate towards the Dutch Defence organization, as a public sector and government organization, it is under permanent scrutiny of the media and the general public as well as of political parties and agencies that look at the proper spending of government budget. The most important authority in this regard is The Netherlands Court of Audit, which assesses whether central government revenues and expenditures are received and spent correctly and whether central government policy is implemented as intended. The Court is entrusted to conduct these tasks by law (Court of Audit, 2017). So reviews of every government unit or agency are published regularly, including reviews of the Dutch Defence organization.

In these reviews the Court of Audit criticized the Dutch Defence organization for inadequately managing their financial and material resources for years in a row (Court of Audit, 2006 till 2016). It was revealed that both financial and material resources management were not conducted carefully enough. Among others it was observed that there was overspending, that liabilities were not registered meticulously enough and that the readiness of the armed forces was under pressure because of lack of (insight in) the maintenance and availability of the materiel.

The summaries of the reports of the Court of Audit (Appendix I) published between 2005 and 2008 show that the various services and units did not demonstrate any improvement in the way they conducted financial and material resources management. In the audit report concerning 2008 the Netherlands Court of Audit even announced the intention to conduct a special investigation, a so-called ‘Investigation of objection’. This kind of investigation in general is initiated when no or insufficient measures are taken in respect of previously identified errors or uncertainties. The Court of Audit assesses what is causing the problems and whether the nature of the problems is structural. On the basis of the results of this investigation, the Court of Audit decides whether or not to object to the policies conducted (Court of Audit, 2017).

The Dutch Defence organization responded to this special investigation in developing Improvement Plans for both financial and material resources management (Ministry of Defence, 2009a and 2009b). It took a number of years to implement these plans and

these resulted in improvements in the form of less reported inaccuracies. In 2012 it was observed that financial management in the four armed services indeed had improved. This improvement, however, ended already one year later, particularly in the Navy and the Air Force. It lasted until 2015 before the two supporting units –the Joint Support Command and the Defence Materiel Organization- showed an improvement of financial management. But then a new problem emerged in the form of a poorly implemented new information system based on ERP; again the administration of liabilities was considered substandard.

With respect to material resources management the situation improved in 2008 but this improvement came to an end already one year later. Another improvement could be seen since 2012, as virtually all inaccuracies at unit level were resolved. Since 2013 the assessment of the management of material resources is based on self-reports of the units in a Monitoring Quality system Materiel (MQM). This way of assessment is approved by the Court of Audit but cannot be compared to the earlier assessment, which was fully based on the reports of independent auditors. Since 2014 - and unfortunately this situation has worsened again in 2015 -, it was observed that the logistic chain of spare parts is not managed carefully enough. Finally, it was concluded that the management of material resources faced the same problems as in financial management, since the new information system based on ERP was incurring serious challenges in this particular domain as well.

One additional remark needs to be made here. Material resources management in the military is about much more than only using scarce resources properly. Proper material resources management in the military is a general taxpayers' concern, but it is also related to safety issues, since the material resources of a defence organization in the wrong hands can have a disastrous impact on society. Weapons and ammunition that disappear for whatever reason should not show up in bank robberies, hostage situations or terrorist attacks.

Consequently, despite repeated attempts to improve the quality of financial and material resources management in the Dutch Defence organizations, the problems have not been resolved. It is commonly assumed that public sector organizations are more likely to employ individuals whose values and needs are consistent with the public service mission of the organization (Perry and Wise, 1990: 368; Rainey and Steinbauer, 1999: 20; Vandenabeele, 2007: 547). Consequently, the composition of the public workforce is expected to reflect the nature of public sector work by attracting employees who desire opportunities to fulfill higher-order needs and altruistic impulses by performing public service (Wright, 2001: 565). This may not be enough though; managing the resources carefully requires a proper balancing of hard and soft management controls.

1.2 Introduction to management control

Originally management control refers to formulating and setting financial goals and to monitoring how and to what extent these goals are being attained. In this connection

Anthony (1965) distinguishes “responsibility centres” that are based on the way the input and output of an organizational unit can be measured. A basic feature in management control is setting financial goals in as far as they can be influenced by the manager. Over time, however, the nature of the goals to be achieved and the corresponding information has enlarged the concept of management control.

According to Kaplan and Norton (1992: 71) by the 1980’s, many senior executives understand that their organization’s measurement system strongly affects the behaviour of managers and employees. They also understand that traditional financial accounting measures, like return on investment, can give misleading signals for continuous improvement and innovations. The traditional financial performance measures worked well for the industrial era, but they are out of step with the skills and competencies companies are trying to master since the 1980’s. That is why Kaplan and Norton (1992: 71) devised a ‘balanced scorecard’, a set of measures that gives top managers a fast but comprehensive view of the business including financial measures that tell the results of actions already taken. It complements these financial measures with operational measures related to customer satisfaction, internal processes, and the organization’s innovation and improvement activities — operational measures that are the drivers of future financial performance.

According to Strauß and Zecher (2013: 234), management accounting and control has experienced recently a new dynamism in terms of proposing various new analytical conceptualizations of management control systems (abbreviated MCS). A diverse set of recently published frameworks, such as the performance management and control framework (Ferreira and Otley, 2005 and 2009), the MCS Package (Malmi and Brown, 2008: 291; Bedford and Malmi, 2015: 2), a conceptual development of Simons’ Levers of controls framework (Tessier and Otley, 2012: 172), conceptual and empirical issues regarding management control as a system or a package (Grabner and Moers, 2013: 409) and two studies that relate management control to configuration theory (Bedford and Sandelin, 2015; Bedford and Malmi, 2015) exemplifies this development. Two issues that seem symptomatic for MCS research have motivated each framework: first, earlier management controls systems seem to be no longer effective enough and second, there is a lack of consistent conceptualization. This study particularly aims to contribute to the first issue: adaptations of contemporary management control frameworks are requested periodically because “[...] the control needs of the current environment are significantly different from those developed in an earlier period [...]” (Nixon and Burns, 2005: 260). A more general new organizational approach focuses on managerial policies and measures, including the “soft” area of the organization, that ensure that organizational results in general will be appropriate. In this approach a much broader range of organizational goals than only financial results is important. Next to financial results, decent management policies ensuring legally and ethically correct practices that lead to general organizational effectiveness are considered necessary. In addition and connected to the first issue, this study also aims to contribute to the second issue in management control research, which is the lack of consistent conceptualization.

Management control includes all devices or systems managers use to ensure that behaviours and decisions of their employees are consistent with the organizations' objectives and strategies (Merchant and Van der Stede 2012: 6). As it is a generic concept, management control can be seen as a package of tools (Malmi and Brown, 2008), consisting of both *formal* and *informal* mechanisms. Another way of labelling formal and informal control mechanisms is the distinction between so-called *hard* and *soft* controls. This distinction - coined by Roth (1998) - has become increasingly influential over the last few years (Kaptein, 2008; 2011a). Hard controls refer to formal efforts to influence employees' behaviour such as rules and regulations with respect to planning, budgeting, spending, and registration, formal descriptions of job authority, and separation of duties (Merchant and Van Der Stede, 2012: 82). Soft controls, on the other hand, are the informal, intangible organizational practices that are of importance to enhance and sustain proper employee behaviour and organizational achievements (Kaptein, 2011a). So far not a lot of research has been conducted with respect to the elaboration of soft controls and their impact on the dynamics of management control in organizations. We intend to contribute to this field by applying the Ethical Virtues Model of Kaptein (2008) to soft controls and hence help to solve the lack of consistent conceptualization in management control research.

The distinction between hard and soft controls is more than academic only. According to Kaptein (1998: 10) there is a surfeit of examples of corporations involved in fraud and corruption, the sale of unusable products, the intentional release of misleading information, the reckless emission of pollutants and the violation of human rights. In such cases the trustworthiness of an organization and/or those who represent the organization is at stake. Stakeholders will reproach the organization if they believe that the organization has deliberately taken insufficient care to prevent or remedy a violation of their interest. In such cases the conscience of the organization, which is anchored in the structure as well as the culture, falls short of what is required (Kaptein, 1998: 11). According to Nixon and Burns (2005: 261), a series of high profile corporate collapses and scandals have exposed weaknesses in both external regulation and internal controls that have led to actions to strengthen regulatory supervision, corporate governance and accountability¹. Ferrarini and Giudici (2005) found that the Parmalat scandal does not lie with the substantive rules concerning corporate governance and gatekeepers' standards of behaviour. Instead, the problem was caused by insufficient supervision and a low level of law enforcement in Italy, which might typify Continental Europe as a whole. According to Mouthaan (2007: 600), a poor formal governance is not the main cause of the incidents at large companies. Above all, it is the human factor which determines the effectiveness of the governance system. He builds his argumentation on the analysis of Skeel (2005) who claims that each of the America's great corporate scandals can be traced back to the influence of the same three general factors. Skeel (2005:157) refers to them as the "Icarus-effect scandals"². The

1 Examples of these actions to strengthen regulatory supervision, corporate governance and accountability are the Cadbury and Turnbull reports in the UK (e.g. Vinten, 2001), the 2002 Sarbanes-Oxley Act in the USA (e.g. Coates, 2007) and the 2004 Tabaksblat Code in the Netherlands (e.g. Akkermans et al., 2007).

2 According to the Greek methodology, Icarus was a boy who was given wings made of wax and feathers by his father. Although Icarus was warned not to fly too close to the sun, he became intoxicated with his newfound powers, flew higher and higher and when the wax holding the feathers in place melted, fell to his death (Skeel, 2005: 157)

first one, most closely to the Icarus theme, is risk taking. To rise to the top of the corporate ladder, an executive must win “probationary crucibles” at each step on the way up. The executives who succeed tend to be self-confident and willing to take risks. The structure of managerial compensation further reinforced the incentive to take risks. The second factor is competition (Steel, 2005: 158). Competitive markets are good, but they too can reinforce managers’ incentives to take risks. The final and third factor is manipulation of the corporate form because it can multiply the opportunities for mischief. By permitting corporations to hold the stock of other corporations, lawmakers gave corporate managers the ability to tuck some of the assets of a business in one corporate entity and other assets elsewhere creating “corporate smoke and fire”. According to Skeel (2005: 175) it seems that every wave of corporate scandals is followed by a federal regulatory response. Hence the repetition of the waves proves that regulations alone are not enough to end corporate misbehaviour. Therefore, Skeel (2005: 175 and 176) calls for altering the regulatory incentives that encourage misbehaviour and a broader perspective on corporate law, expanding it from shareholder, director and manager, to employees, suppliers and other constituencies. The last remedy Steel comes up with is integrating business ethics into the existing emphasis on self-interest. Not only by announcing and introducing policies of ethical behaviour but foremost by ‘practice what you preach’.

1.3 Culture and cost awareness

Next to hard and soft controls, the typical culture of an organization may affect the way employees use the financial and material resources. Soft controls are specific manifestations of the more general culture, which concerns the beliefs, values and norms prevailing in the organization about what is good and bad (Schein, 1985). The specific organizational culture can have a positive or negative impact on the management of resources. The influence may be positive if the managers and employees of an organization have a correct and strong common understanding of what is careful and what is careless resources management. If this strong shared understanding is missing or the common understanding is not focused on careful resources management, the influence has a negative impact on careful management.

The existence of subcultures in the Dutch Defence organization may affect the degree of cost awareness among different categories of employees (Soeters, 2000). This corresponds to the distinction that Hofstede, Neuijen, Ohayv and Sanders (1990: 302) make in process- and results-oriented cultures. Process-oriented organization parts are characterized by a focus on resources and result-oriented organization parts are focused on achieving the goals. Employees of the four armed services are responsible for the three main tasks of the Dutch Defence organization. It is the question if employees from the armed services are as concerned about the costs as they are about achieving results in operations.

1.4 Aim of this study and research questions

In accordance with the significance that is attached to careful management, various studies have been conducted as to the impact of formal and informal management control systems on behaviour in the profit sector (e.g., Smith-Crowe, Tenbrunsel, Chan-Serafin, Brief, Umphress, & Joseph, 2015). In the public sector, Norman (2002) studied in a qualitative manner the impact of formal and informal controls on New Zealand's public sector performance management systems. But as far as we know, the impact of a system of both formal and informal controls, on financial and material resources management has not been studied extensively before in a defence organization. This is exactly what this study aims to do.

This study aims to determine the relative influence of (the various categories) of hard and soft controls on the careful use of financial and material resources in the Dutch Defence organization. Given the idiosyncrasies of defence organizations in general, the influence of the military professional culture as well aspects of cost awareness will be included in this study. The study uses blended methodologies as it is based on a) a large-scale survey research among two samples of personnel that are involved in financial and material resources management respectively, b) on qualitative interviews particularly with commanders and financial specialists and c) archival reports of auditors on units' performance. The latter source of information has been used to prevent the so-called 'common method-bias'.

As said, this study aims to test multiple relations between soft and hard controls on the one hand and financial and material resources management in the context of the Dutch Defence organization on the other. This results in the following central research question:

In what way do hard and soft controls influence financial and material resources management of the Dutch Defence organization?

To answer this central research question, several sub-questions are distinguished:

1. What are - according to the theory - the relations between military professional culture, cost awareness, hard and/or soft controls and financial and material resources management?
2. What are the various internal stakeholders and do these stakeholders differ in their views of management of financial and material resources in the Dutch Defence organization?
3. Which kind of controls, hard and/or soft, are more effective in managing the financial and material resources of the Dutch Defence organization?
4. Which specific hard and soft controls in what intensity are effective in managing the financial and material resources of the Dutch Defence organization?

5. Can the views of the respondents in the Dutch Defence organization be validated with information from 'external' (archival) sources?

1.5 Academic and practical relevance

This study intends to unpack the so-called management control mix by focusing on the respective influence that the various sorts of hard and soft management controls may have on financial and material resources management. As such, it aims to add to our knowledge in this connection, for organizations in general, more specifically for public sector organizations, and for defence organizations in particular. Given the specific context of this study – the military -, including indications of professional culture and cost awareness adds to the general understanding of management control and its antecedents.

As said, the study applies a research design consisting of blended methodologies: survey research, semi-structured interviews and archived audit reports. Given this blended methodological approach, this study has added academic value because previous studies make use of either qualitative or quantitative data. Our blended approach compensates for the weaknesses of either of those methodologies. The qualitative data enrich the statistical results, the statistical results constitute the foundation of findings, and the archival reports provide yet another perspective with respect to the questions at hand.

This study also serves a practical goal, as this research may contribute to gaining and increasing insights with respect to the underlying managerial problems in the Dutch Defence organization (Court of Audit, 2006 till 2016), which so far have hindered the careful use of financial and material resources. Based on theories, hypotheses and empirical testing, this study intends to lead to recommendations that controllers and auditors as well as managers within the Dutch military organization hopefully may apply.

1.6 Outline dissertation

The outline of this dissertation is illustrated in Figure 1-1. The next chapter contains the review of the relevant literature in the domain of this study. It will look at existing theories with regard to military professional culture, cost awareness and different forms of hard and soft controls. The chapter concludes with the theoretical relations between these variables and careful financial and material management. Chapter 3 is the methodology chapter that describes how the research population and the sample were constructed, how the data were collected, and how the selection of the interviewees for the semi-structured interviews came about. Furthermore this chapter describes how the qualitative and quantitative data analysis was performed. The chapter includes a review of validity, reliability and generalizability aspects of the data.

Then, the results of the different analyses are presented in the four following chapters. In chapter 4 the results of the qualitative analysis of the interviews and the open questions in the survey are presented. In chapter 5 the question is which kind of controls - hard and/or soft controls - are more effective in managing the financial and material resources of the Dutch Defence organization. The subsequent chapter, chapter 6, provides the answer to the question which of the hard and soft controls is specifically effective in managing the financial and material resources of the Dutch Defence organization. It also delves deeper into some categories of hard and soft controls by performing curvilinear regressions to determine whether an optimal intensity in using hard and soft controls can be revealed. Chapter 7 introduces another source of data into regarding material management. The audit reports of the internal control departments of the Dutch Defence organization were examined and compared and combined with the survey results.

The final eighth chapter draws the overall conclusion and integrates the previous chapters. It is also a reflective chapter and will provide insight into the limitations of this study and offers suggestions for further research. As said, the thesis will close with a number of recommendations that may be useful for everyday managerial practice. Several appendices will provide more in-depth information on subjects discussed in the study.

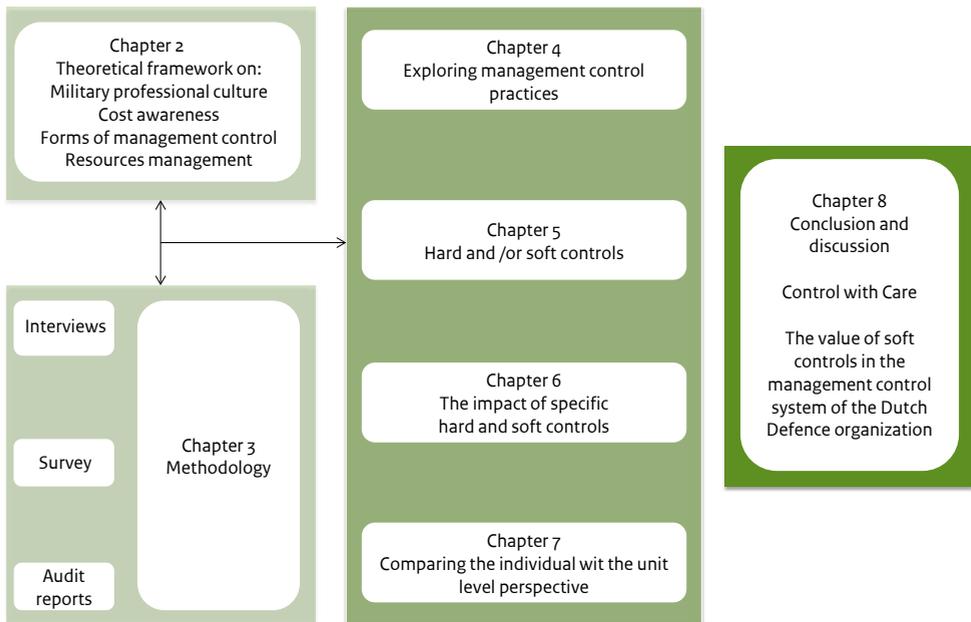


Figure 1-1 Outline dissertation

2

2 Theoretical framework

This chapter gives a review of existing theories with regard to the relation between military professional culture, cost awareness, different forms of management control and financial and material resources management. The aim is to answer the first sub-question:

What are - according to the theory - the relations between military professional culture, cost awareness, hard and/or soft controls and financial and material resources management?

2.1 Careful employee behaviour

Management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aims (Koontz and Weihrich, 2010: 2, 3). Therefore, the tasks of management is twofold: to encourage employee behaviour that leads to effectively and efficiently realising predetermined goals and to prevent employee behaviour that impedes this. Much research has been conducted on the latter: negative employee behaviour, which is often indicated as deviant, unethical or counterproductive work(place) or job behaviour. In an attempt toward an integrative theory of counterproductive workplace behaviour, Martinko, Gundlach and Douglas (2002: 37) review various definitions. They follow Collins and Griffin (1998) who note that almost all of the definitions assert that counterproductive workplace behaviours are characterized by a disregard for societal and organizational rules and values. In addition, they note that counterproductive behaviours can range in seriousness from low (e.g. petty stealing) to high (e.g. violence). Other definitions indicate that counterproductive workplace behaviours are actions that threaten the wellbeing of an organization and its members, and break implicit and explicit rules about civil, respectful, and appropriate behaviour (e.g. Robinson and Bennis, 1995; Spector, Fox, Penney, Bruursema, Goh and Kessler, 2006; Spector, Bauer and Fox, 2010).

Hence, there are two major types of counterproductive workplace behaviour identified in the literature: individual- and organization directed (Bennett and Robinson, 2000: 350). Counterproductive workplace behaviour that is directed at other employees can include physical or verbal aggression and other forms of interpersonal mistreatment that can be described as harmful. Counterproductive workplace behaviour directed toward the organization includes any other type of behaviour that is harmful to the organization like production deviance (e.g., purposely doing one's work incorrectly; purposely working slowly when things need to get done); sabotage (e.g., purposely wasting your employer's materials/supplies; purposely damaging a piece of equipment or property); theft (e.g., stealing something belonging to your employer; putting in to be paid for more hours than you work); and withdrawal (e.g., coming to work late without permission; staying home from work and saying you were sick when you weren't) (Spector et al., 2006; 2010).

Of course the opposite of counterproductive work behaviour is productive work behaviour. Haski-Leventhal, Roza and Meijs (2017: 37) speak of Employee Socially Responsible (ESR) behaviour, which includes the socially responsible actions of employees in the workplace, along with their participation in the Corporate Socially Responsible (CSR) efforts of their employers. The positive side of employee behaviour is the perspective we aim to use in this study. However, in this study we have chosen to broaden the idea of productive work behaviour because not only elements of effectiveness and efficiency but also the legitimacy of the use of financial and material resources are considered important. Therefore we have chosen the concept of 'careful employee behaviour' leading to 'careful management' of the resources, which is the translation of the Dutch concept of 'zorgvuldig beheer'. This concept is used throughout the Dutch government agencies¹.

The question that arises is under which circumstances employees display desirable, in this context careful behaviour. According to Merchant (1982: 43, 44) one important class of factors relate to helping employees to overcome personal limitations causing people to be unable to act in the best interest for the organization. People do not always understand what is expected of them nor how they can best perform their jobs, as they may lack requisite ability, training or information. In addition people may have a number of innate perceptual and cognitive biases, such as the ability to process new information or to make consistent decisions. The other class of problems are caused by people who are properly equipped, but choose not to perform their job well. In other words they are able, but unwilling to act in the best interest of the organization. This lack of goal congruence is likely to be caused by the fact that individual goals and organizational goals may not coincide. The fore mentioned study of Haski-Leventhal et al. (2017) pleads for a full congruency between the corporate and the employee level of social responsibility, in which identity as well as behaviour are entwined.

Since this study is about careful financial and material resources management, the ultimate focus of attention is careful employee behaviour. That is what management tries to achieve, in the various domains of its activities.

2.2 Financial and material resources management

Employees do not own the organization's resources, they are given the responsibility to use these resources in the way that suits the organization's goals best. This goal may not always be perfectly clear, though. In public organizations in particular, the emphasis on the continuation of the organization's activities or the importance of the public cause –

¹ The articles 19 and 21 of the Comptabiliteitswet 2001 show that ministers are responsible for a legitimate, orderly and controllable management of the resources made available to them. The management should also be carried out as efficiently as possible. In contrast to the requirement of legitimacy, the requirement of efficiency is formulated as an obligation to make the effort. The Court of Audit assesses annually the current practice with regard to the management of resources on the basis of article 82 of the Comptabiliteitswet 2001. In this assessment is also defined which of the conditions for lawfulness, orderliness and controllability has not been met. This also leads to a reporting in terms of 'identified deficiencies' (Court of Audit, 2003). If the management of resources meets the requirements of legitimacy, orderliness and controllability and does not lead to deficiencies, in this study we choose to speak about 'careful management'.

particularly if matters of life and death are at stake – may prevail over the efficient use of the organization's resources (Meyer, Zucker and DiMaggio, 1989; Seibel, 1996: 1019). However, in times of decreasing budgets and an increased need to use the taxpayers' money in the best possible way, it is no longer acceptable to permanently stress the organization's 'true' purposes at the expense of more mundane considerations pertaining to the organization's financial and material resources. Public sector organizations in general are input-oriented and thus require careful managerial attention with respect to processes and results in financial and material resources management (Barzelay and Thompson, 2006). It is not surprising that such organizations face continual problems in keeping the use of the available resources under control (e.g.. Meyer, Zucker and DiMaggio, 1989).

2.2.1 Financial management

According to Brigham and Houston (2012: 5) financial management, also called corporate finance, focuses on decisions relating to how much and what type of assets to acquire, how to raise the capital needed to purchase the assets and how to run the firm so as to maximize its value. The same principles apply to both for-profit and not-for-profit organizations. However, public financial management, more specifically, may be defined as the system for generating and controlling public financial resources to achieve effective and efficient public service delivery. It involves planning and budgeting, accounting and reporting, internal controls, audit and external oversight with a view to availability of benefits to the greatest number of citizens, support of good governance and the attainment of the three budgetary goals of aggregate fiscal discipline, effective allocation of resources to priorities and efficient service delivery (Hamid, 2013). Careful financial management within public organizations is generally thought to guarantee the support of key external stakeholders like taxpayers and regulatory agencies (Hou, 2007).

According to the Improvement Plan of Financial management of the Dutch Defence organization financial management is complying to procedures and internal and external regulation when executing of, recording of and accountability for the financial consequences of transactions carried out by the Dutch Defence organization (Ministry of Defence, 2009a: 13).

2.2.2 Material resources management

According to Ghiani, Laporte and Musmanno (2004: 1) material management, or logistics, deals with the planning and control of material flows and related information in organizations. Its goal is to get the right materials to the right place at the right time, while optimizing a given performance measure (e.g. minimizing total operating costs) and satisfying a given set of constraints (e.g. a budget constraint). Material management in the military includes managing, cataloguing, determination of requirements, procurement, distribution, overhaul and disposal of materiel (US Department of Defense, 2005).

According to the Regulation of Material Resources Management of the Dutch Defence organization (Ministry of Defence, 2009c) material resources management is the care for movable property (other than financial resources) from the time of receipt to the moment of disposal.

2.3 Military professional culture

Thus far we have focused on the dependent variables of this study being the quality of financial and material resources management. In this study we aim to decipher the antecedents or determinants of those dependent variables. The first antecedent of importance in a defence organization is military culture.

Culture is a basic concept in the social and behavioural sciences including public and business administration studies. As such it has a long history dating back to the first decades after the Second World War. Famous scholars in this connection are Jaques (1951), Hofstede (1980), Ouchi (1981) and Schein (1985). Standing on their shoulders, Wilson (2001: 354) states that the concept of culture originates from the study of ethnic and national differences in the disciplines of sociology, anthropology and social psychology. He believes that in the definition of Haggett (1975: 238) a good summary of the many definitions for culture developed in each of these disciplines can be found:

“Culture describes patterns of behaviour that form a durable template by which ideas and images can be transformed from one generation to another, or from one group to another”.

Three elements of this definition need to be explained further (Wilson, 2001: 354): First, the transformation of behaviour does not take place through genetics but takes place through social interaction between members of a group. Second, the elements of a culture tend to form a relative stable system and is therefore slow to change. Third, the ideas and images of culture provide a guide for acceptable behaviour. Many aspects of culture are therefore embodied in different kind of rules; some are laws backed by official punishments and others are social norms backed by social disapproval.

2.3.1 Organisational culture

Culture can be distinguished at various levels, for instance at the level of nations, religions, language groups and families. Another important level at which culture can be discerned is at the level of organizations. According to Sackmann (1992: 141) definitions of culture in an organization context vary in their use of a central concept: the central concept in use may include ideologies (Harrison, 1972), a coherent set of beliefs (Baker, 1980; Sapienza, 1985) or basic assumptions (Wilkins, 1983; Schein, 1985), a set of shared core values (Deal and Kennedy, 1982; Peters, Waterman and Jones, 1982), important understandings (Sathe, 1983), or the “collective programming of the human mind” (Hofstede, 1980: 25). These concepts

are either used from a functionalist or an interpretative perspective, with culture being something that an organization “has” as compared with something an organization “is” (Smircich, 1983; Sackmann, 1989). When researchers started to link multiple types of cultures to certain outcome variables like performance (e.g. Wilkins and Ouchi, 1983), culture became a mechanism to achieve managerial effectiveness and control.

During this development a larger number of definitions of organisational culture has been proposed. Wilson (2001: 355, 356) discerns four key elements that appear in many of these definitions. First organisational culture is a shared phenomenon (e.g. Wilkins and Ouchi, 1983). In this way culture is a learned product of group experience and is therefore only to be found where there is a definable group with a significant history. Second, most authors believe that there are at least two levels of culture: a visible and a deeper, less visible level. The visible level consists of behaviour patterns, the psychical and social environment and the written and spoken language used by the group. The deeper, less visible level of culture relates to the group’s values and what Schein (1984: 4) calls their basic assumptions. The shared values consist of the goals and concerns that shape a group’s sense of what “ought” to be. The third element of organisational culture concerns the manner in which new members learn the culture. This process of cultural socialization arises informally from the existing employees and formally through induction training programmes. Finally, corporate cultures tend to change slowly over time. Kotter and Heskett (1992) explained that culture evolves as a result of the turnover of group members, changes in the company’s market environment and general changes in society. These four key elements together result in a definition of organisational culture:

“Organisational culture is defined as the visible and less visible norms, values and behaviour that are shared by a group of employees which shape the group’s sense of what is acceptable and valid. These are generally slow to change and group members learn them through both an informal and formal socialisation process”. (Wilson, 2001: 356)

2.3.2 Military culture

A specific organization is the military, or the defence organization (Soeters, Van Fenema & Beeres, 2010: 1-7). Three characteristics of military organizations stand out (Lang, 1965: Soeters, 2000). First there is the *communal life*. In the armed forces, military life and personal life tend to overlap, transforming the job into a part of everyday life. Military personnel, and in a number of countries also their families, live during large parts of their working lives in military housing facilities that are separated from ordinary life. Second, military life is steeped in *hierarchy*, which is a consequence of being bureaucracies ‘par excellence’. They are pyramids with a clear ‘coercive’ power coming from the top that is accepted by all and made visible on the uniforms. Third, military organizations stress *discipline*. That is compliance with the rules, the acceptance of authority and punishment in cases of disobedience.

This implies that organisational culture in military organizations has specific features. These have been described in a number of earlier publications such as Dunivin (1994), Burk (1999), Snider (1999), Murray (1999), Soeters (2000), and Soeters, Winslow and Weibull (2006). Based on these previous contributions, Wilson (2008) outlines a conceptual framework which argues that military culture is a specific form of institutional culture and that this view offers new insights into how they function and the nature of their interaction with state and society. An institution will be seen as a specific type of organization with three characteristics (Wilson, 2008: 16).

First, it can be identified through its members, who are qualified members of a professional body. According to Bloor and Dawson (1994) professionalization, or the way in which certain occupations gain the status of a profession, is generally described in terms of a sequence of often overlapping stages or events. These events include the formation of a professional association, attempts by members of the profession to gain control over their particular area of work, the development of minimum standards of professional training and the establishment of training facilities, the pursuit of a professional knowledge base, the development of a code of ethics, and political agitation to gain public support for the claim to professional status and for affiliation with, and regulation by, the state. Professionals are influenced by a system of values, attitudes and expectations related to the surrounding society, their training school, their profession, and other organizations where they have worked in the past (Louis, 1980). In deciding how to behave, professionals have access to a broader package of cultural values than non-professionals.

Second, institutions need symbols to distinguish members from non-members and to serve as a focal point for identity. According to Snider (1999: 17, 18) these ceremonial displays and etiquette is the most observable element of military culture in peacetime. Burk (1999: 451) explains the function of this visible displays “These ceremonies and etiquette make up an elaborate ritual and play the role that ritual typically plays in society to control or mask our anxiety and ignorance; to affirm our solidarity with one another; and to celebrate our being, usually in conjunction with a larger universe”.

Finally, institutions are defined by a threefold interaction: internally amongst the members, between members and non-members and collectively with other institutions, including the state. Institutions may differ from each other as for function, size and impact, but tend to follow comparable normative paths and are all engaged in similar issues (Wilson, 2008: 17). Each has a mission that defines its purpose and legitimates its existence. Each must define its relationship to the state and other institutions. Each has a social basis and relationship to society. Each has an internal structure that embodies its norms and assumptions. And each requires resources to survive and function.

Despite often considerable differences in function, size, duration and impact, institutions tend to follow similar normative paths and have to deal with the same five issues (Wilson, 2008: 17): a mission to define its purpose; the relationship to the state and other institutions;

a social basis and relation to society; an internal structure; and resources to survive and function.

Regarding the armed forces, the first three issues can be discussed in connection with each other. The mission of institutions is rarely singular, identified with one clear task. The armed forces of the Netherlands have three main tasks²: protection and promotion of the international rule of law, support and assistance in execution of civil government tasks and defense of our own territory and those of our allies. Armed forces differ from other institutions in that their primary mission entails a readiness to take life and destroy property. This legitimate monopoly of violence is the most eye-catching element of the relationship between the armed forces and the state. Like other institutions, the armed forces have a relationship with society to recruit new members and induct them into their culture. Soeters et al. (2006: 249) state that in military organizations “endo-recruitment”, recruiting new employees from families where one of the parents or relatives is a military employee, is a fairly common phenomenon. Through so called “anticipatory socialization” children in such families start to identify with the occupation they see nearby and so as new recruits easily become the persons the organization wants them to be. Research of Moelker and Soeters (1998) shows that many officers and civilian employees of the armed forces come from families with a tradition of service to the State, the so called “military families”. Groen and Klinkert (2003: 518, 519) demonstrate that in the Netherlands more than half of the officer-cadets between 1836 and 1935 were sons of military fathers. Their relative number declined immediately after World War II towards 20% in the 1970s. The current situation is somewhat unclear as military families today may also entail military mothers, brothers and sisters and relatives that are somewhat further away³.

The fourth issue, the internal structure of institutions, can be analysed according to its complexity, formalisation and centralization (Wilson, 2008: 31 – 34). Since the defence organization is a large organization, the internal structure is more complex because of the partition in defence components that again are divided into brigades, battalions and companies for the army (and similar for other defence components). The flow of information, resources and staff within this structure is highly formalized through written regulations. There is a clear risk that procedures become routine and lose touch with their original purpose. Military institutions are especially prone to this, given their preference of tradition and a labour force relatively isolated from society (Soeters, 2000). In other organizations people with a civilian training background are hired for top management functions. In defence organizations, on the contrary, those positions are usually held by military personnel who were educated initially in military academies and had their additional training and all of their work experience within the military organization. The element of hierarchy can

2 The armed forces have three main tasks: protection and promotion of the international rule of law, for example by participating in peacekeeping operations. Support and assistance in execution of civil government tasks, as well as international aid together with the Ministry of Development and Cooperation and organizations who fight against disasters. And defense of our own territory and those of our allies against a limited military threat and against a wide range of security risks.

3 The situation at the moment is unclear since there is no formal registration of endo-recruitment.

be added here. The level of power distance in military organizations is larger than in the business sector (Soeters, 2000: 469 and Soeters, 2006: 242). Important decisions are reserved for the higher ranks, while a difference may arise between the decision that is made and the actual implementation in the workplace.

The fifth and last issue of a military institution is about three types of resources that affect military culture: money, technology and education (Wilson, 2008: 35). Money can be seen as the 'nerve of war' and it is an important mean to acquire other resources to carry out the mission, like military materiel and ammunition. But it is a significant mean to pay the employees as well. Defence is a public good and therefore depending on politics for the level of the budget (Soeters, Fenema and Beeres, 2010: 3). Technology as the second type of resource, is generally considered from a rather narrow perspective as the development or improvement of weaponry. Traditionally there is not much attention for the impact of bureaucratic procedures, accounting practices or organisational practices that contribute to military success. At last, the resource of military education and training, is characterized by preparation for the professional task and it serves to reinforce institutional identity and foster traditions. According to Soeters (2006: 250) new recruits are socialized in training and education institutes. One of the arguments for military organizations to have their own academies and training facilities is that the new recruits are interned and therefore make them available to the organization around the clock. Basic military training in such a situation facilitates the transition of a person into a new social role and status.

2.3.3 Subcultures within the military

An organisational culture does not need to apply for the entire organisation. Organisations can have subcultures (Wilson, 1997) or cultural subgroupings (Sackmann, 1992: 140), usually caused by functional/occupational differentiation; geographical decentralization; differentiation by product, market, or technology; divisionalization and differentiation by hierarchical level (Schein, 1985). This corresponds to the distinction of Hofstede (1980) in process- and results-oriented cultures. Process-oriented parts of an organization are characterized by a focus on resources and results-oriented organization parts are focused on achieving goals. Employees of the four armed services are responsible for the three main tasks of the Dutch Defence organization. They probably do not want to put cost considerations on the first place when making decisions about the implementation of these tasks. This un-prioritizing attitude towards costs is caused by the fact that the primary tasks are seen as more important. A parallel can be drawn with the culture in the health sector. This culture has an explicit expression of values because the goal to protect human lives is placed above any other objective (Snider, 1999). On the other hand, the supporting organizational elements of the Dutch Defence organization are not directly involved in the implementation of the three main tasks. This part of the organization can be compared to a normal office environment where rules, strategic planning and controlling the costs are common practice. Based on this reasoning, it is to be expected that the specific military professional culture has a negative impact on cost-consciousness and, therefore, on resources management, whereas

those parts of the Defence organization that are outside of the core-military domain may be more willing to pay attention to costs. This can be elaborated a bit further.

Soeters (2000: 472- 475; 2006: 245 - 249) describes the subcultures in military organizations using the metaphor of the Roman god Janus, the god with the two faces. To specify the distinction between the two faces three dimensions are of relevance: the risk for personal life, the turbulence of critical events and the time dimension. Using these dimensions, two subcultures or two sides can be distinguished, the “cold” and the “hot” side of a military organization. These descriptions are derived from the world of the Fire Service, where personnel always speak in terms of this two-sided concept (Soeters, 2000). The subculture of the “cold” side of the organization can be found in headquarters or the staff of military organizations. They are similar to ordinary office organizations where a bureaucracy with hierarchy, specialization, rational decision making, (strategic) planning, paper work and quality and cost control are the order of the day. Also when military units are not deployed in crises response operations, the culture resembles the “cold” side of the organization. In the bases and on the ships all activities are focused on training, exercise, maintenance to be prepared for the worst case scenario. These activities can be planned and are of a routinely nature.

However, the subculture of the “hot” organization occurs when units are effectively deployed in crisis response operations. Then the organization is built around flexible groups with either the characteristics of a simple structure (“one leader”) or – when explicitly based on self-management – an adhocracy (Mintzberg, 1983). The members of these groups form a strong cohesive group with a “can-do” mentality and a collective subconscious. This means that there is less emphasis on rules and regulations.

2.4 Cost awareness

Next to military culture as an antecedent of financial and material resources management, cost awareness is distinguished as a factor of importance to explain our dependent variables, being the quality of financial and material resources management. Cost awareness is more than just price awareness; the object of cost awareness is to use finances, materiel, materials and/or personnel only because they lead to satisfactory results and cause less further - unnecessary – expenditures (Garland, 1985). This perspective balances the obligations of the employee with their duties towards society - whose pooled resources pay for the employee’s services (Garland, 1985: 44).

The relation between cost awareness can be linked to medical care, based on the reasoning of placing the patients interest’ first and above all other goals (Feldman, Novack & Gracely, 1998: 1630; Snider, 1999). According to Fowkes (1985: 116) there is a belief among many doctors that it is unethical to consider costs when managing individual patients no matter how small the benefit achieved per unit of cost. However, it has been proved that cost efficiency

can be increased if doctors acquire a greater knowledge of costs, or even more important an increase in cost consciousness leading to a greater discrimination in the use of clinical resources (Fowkes, 1985: 116). Later, Hart, Salman, Bergman, Neuman, Rudniki, Gilenberg, Matalon and Djaldetti (1997: 415) showed that awareness of drug costs affects prescription decisions among physicians in hospitals, whereas family physicians showed a preference for less expensive drugs even before they were informed about drug costs. And more recently, Jacobs, Marcon, and Witt (2004) found that economic concerns are significantly important in the decision making of employees in the healthcare sector. This all may imply that knowing about the costs related to a decision will lead to fewer costs and thus a higher financial management performance. Therefore, cost awareness in this study is defined as “the use of information on costs when a (financial) decision is made”.

However, whether cost awareness actually leads to fewer costs is not proven in the medical care yet (Bovier, Martin & Perneger, 2005). This might be caused by the fact that cost awareness is still lagging behind what it should be. At least according to a French study of intensive care units which found that physicians have a poor awareness of prescriptions costs, especially with regards to high-cost drugs (Hernu, Cour, de la Salle, Robert & Argaud, 2015: 1406).

Nonetheless it can be expected that when employees are more aware of costs, different alternatives are explored in the decision making process and better financial decisions can be made by employees. So, increased cost awareness may seem desirable, but for military employees it can create a conflict of interests, comparable to the conflict experienced by medical doctors. The military and healthcare sector both have a culture with an explicit expression of values because the goal to protect human lives is placed above any other objective (Snider, 1999). According to traditional medical deontology, based on equivalence of individuals, the only concern of a doctor should be the welfare of his or her patient, regardless the costs for society. Research of Feldman et al. (1998) shows that too much emphasis on cost awareness among doctors may cause a conflict of interests with adverse effects on their ethical obligations and quality of care for the patient. However, the study of Bovier et al. (2005: 2) among Swiss medical doctors shows that the vast majority of doctors feel that their job is to control costs and that they should play a more prominent role in limiting unnecessary testing.

In this study it is assumed that placing human lives above all costs, is also present within the military culture (Soeters, 2000). This is especially true in the operational organizational units that are frequently deployed in missions abroad. The special position of money within the military goes back to the Indian Caste System where Kshatriyas, the warriors and rulers, constitute the second caste immediately after the priests. In this Caste System the military is to be labelled as ‘ideal’ and lower castes try to live up to them. Most importantly, they are free from financial obligations (Stevenson, 1954: 48).

For military employees, their primary concern should be the three main tasks in order to protect and save as much lives as possible (Feldman et al, 1998; Snider, 1999), without

regarding the costs to society (Bovier et al., 2005). However, in times of decreasing budgets and an increased need to use the taxpayers' money in the best possible way, it is no longer acceptable to ceaselessly stress the organization's 'true' purposes at the expense of more mundane considerations pertaining to the organization's resources.

2.5 Management control

As already stated in the first chapter, next to military culture and cost awareness, management control –as the core of this study - is distinguished as the main antecedent of the quality of financial and material resources management. According to Merchant and Van der Stede (2012: 3) management control failures can lead to large financial losses, reputation damaged possibly even to organization failure.

Since management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aims (Koontz and Weihrich, 2010: 2, 3), the importance of management control is illustrated by the following extract:

"If all personnel always did what is in the best interest of the organization than controls -and even management- would not be needed. But obviously individuals are sometimes unable or unwilling to act in the organization's best interest and a set of controls must be implemented to guard against undesirable behaviour and to encourage desirable actions." (Merchant, 1982: 43).

Thus the primary function of management control is to influence behaviour in desirable ways. The benefit of management control is the increased probability the organization's objectives will be achieved (Merchant and Van der Stede, 2012: 6). More than organizational design parameters, management control provides flexible answers to possible mishaps and new challenges (Eisenhardt, 1985). At the bottom line management control mechanisms are necessary to minimize suboptimal outcomes and consequences. More positively formulated, management control is a generic concept that covers diverse sets of mechanisms – i.e. instruments and practices - that are needed to reach for the best results for the organization.

After an extended review of management control textbooks and paper research, Strauß and Zecher (2013: 263, 264) concluded that at first management control systems were regarded as means to provide information for decision-making purposes in the context of organizational goals. Such a management control system is essentially a cybernetic process of planning, performance measurement, and rewarding. In this view, only formalized controls were included. The scope of management control systems gradually widened to include behavioural-influencing aspects as well. This holistic understanding of management control systems puts an emphasis on the control of human behaviour by formal and informal control mechanisms.

2.5.1 *Recent developments in management control research*

As already mentioned in chapter 1, two issues seem symptomatic for management control research: first, management control systems seem to be no longer effective enough and second, there is a lack of consistent conceptualization. Some recent studies have been motivated by these two issues.

Tessier and Otley (2012: 172) developed a revised framework of Simons' Levers of controls framework that has been criticised for its vague concept definitions. The revised framework improves on existing concept definitions to give greater internal coherence, while retaining the useful elements of the original framework. Tessier and Otley (2012: 182-183) introduce two groups of actors, managers (intention) and employees (perception). Managerial intentions are comprised of three levels of choice: first, types of controls (social and technical); second, objectives of controls (performance or compliance) and third, other choices regarding use of controls (interactive or diagnostic), role of controls (enabling or constraining) and consequences of controls (rewarding or punishing).

Grabner and Moers (2013: 407) address questions related to management control as a package and as a system, both from a conceptual and empirical perspective. They propose that management control practices form a system if these practices are interdependent and the design choice has taken these interdependencies into account (Grabner and Moers, 2013: 409). On the other hand, management control as a package can be composed of a set of management control systems and/or a set of management control practices addressing unrelated control problems (Grabner and Moers, 2013: 410).

Bedford and Malmi (2015: 2) relate management control to configuration theory in organization studies. They explore how multiple accounting and other control mechanisms commonly combine and the associations these combinations have with firm context. Their analysis, drawn from a cross sectional sample, presents a taxonomy of five control configurations used by top managers, labelled as simple, results, action, devolved, and hybrid. Many of these patterns closely resemble control configurations common to the literature, while others represent distinctively contemporary arrangements, such as flexible variants of traditional bureaucracy (action), and instances where multiple and seemingly conflicting control types intermesh (hybrid) (Bedford and Malmi, 2015: 17). Their study is primarily descriptive in nature and the effectiveness of the various emerging control configurations has not been investigated.

2.5.2 *Categorization of controls*

Through the years, controls have been categorized in many ways. Without claiming to be comprehensive, we describe a few of them. In the classic view, outlined in Anthony's work (1965: 17), management control is defined as "the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives". It concentrated on formal (and usually accounting) controls without setting them in their wider context. Ouchi (1979: 838) distinguished between three

types of control: 'market control' (price is the only control mechanism needed in a free market), 'bureaucratic controls' (using rules to define and accomplish the output) and 'clan controls' (controls based on social pressure).

Merchant (1982: 45). designed a Control Tool Classification Framework with three types of control: 'action control' attempts to ensure that individuals perform certain actions that are known to be desirable; 'results control' involves holding employees responsible for certain results and 'personnel control' emphasizes a reliance on the personnel involved to do what is best for the organization, and it provides assistance for them as necessary.

Even though Simons' Levers of Control Framework (1995) has been criticized recently as we just saw, its content is still valuable because it adds to the more traditional 'diagnostic control systems'. The traditional control systems communicate the critical performance variables to monitor organizational outcomes and correct deviations from pre-set standards of performance (1995: 59). Simons' additions refer to: 'belief systems' that communicate core values to provide purpose and direction for the organization (1995: 34), 'boundary systems' which communicate risks to be avoided thereby delineating the acceptable domain of activity for organizational participants (1995: 39) and 'interactive systems' which focus on strategic uncertainties used to involve managers in the decision activities of subordinates (1995: 95) and to stimulate search and learning which can result in new emergent strategies (1995: 91). These four control systems, according to Simons, will provide managers with the basic levers for pursuing strategic objectives.

In this study the distinction between formal or hard, and informal or soft, controls will be the central focus of attention.

2.5.3 **Hard and soft controls**

According to Langfield-Smith (1997: 208), formal controls include rules, standard operating procedures and budgeting systems. These are the more visible, objective components of the control system, and thus, the easiest to research. Empirical research that studies MCS and strategy has focused primarily on formal controls. These include output or results controls which are of a feedback nature, and often financially oriented. They include controls that aim to ensure that specific outcomes will be achieved and involve monitoring, measuring and taking corrective actions. Controls that focus on feedforward control (ex-ante controls) include administrative controls (standard operating procedures and rules), personnel controls (human resource management policies) and behaviour controls (the ongoing monitoring of activities and decisions).

Informal controls are not consciously designed (Langfield-Smith, 1997: 208). They include the unwritten policies of the organization and often derive from, or are an artefact of the organizational culture, the concept we discussed earlier in this chapter. Ouchi (1979: 838) described clan controls that derive from the shared values and norms, or the culture of the

organization⁴. Informal controls are important aspects of MCS and the effectiveness of formal controls may be dependent on the nature of the informal controls that are also in place (Otley, 1980; Flamholtz, 1983).

As it is a generic concept, management control can be seen as a package of tools (Malmi and Brown, 2008) or a system of tools (Grabner and Moers, 2013), consisting of both *formal* and *informal* mechanisms. Another way of labelling formal and informal control mechanisms is the distinction between so-called *hard* and *soft* controls; this distinction has become increasingly influential over the last few years (Roth, 1998; Kaptein, 2008; 2011a). Hard controls refer to the formal, bureaucratic procedures to influence employees' behaviour into the direction that aligns with the organization's intentions. Soft controls, on the other hand, are the informal, intangible organizational practices that are of importance to enhance and sustain proper employee behaviour and organizational achievements (Kaptein, 2011a).

The debate about hard and soft controls in the public sector goes back to a series of exchanges in the later 1930s and early 1940s between two scholars of public administration, Herman Finer and Carl Friedrich. The central issue in this so-called Friedrich-Finer debate is a tension between accountability and responsibility (Jackson, 2009). Friedrich stresses the importance of responsibility, which includes an inner motivation, whereas Finer highlights accountability as a direct external accounting mechanism. Friedrich believes in *eliciting*, professionalizing public administration through training, education and conditions of employment, in contrast to *enforcing*, using explicit instructions and punishment schedules for not obeying, responsible conduct. Enforcement can be effective for preventing undesirable actions like corruption, but not for securing good effects. So one simple needs both (Friedrich, 1935: 34).

Simons (1995: 4) already made a distinction between positive, inspirational forces (belief and interactive control system) and constraints to ensure compliance with orders (boundary and diagnostic control systems). The need to balance these opposing forces and integrate different kinds of controls is an essential element of Simons' philosophy. According to Merchant and Van der Stede (2012: 6) management control "includes all the devices or systems managers use to ensure that behaviours and decisions of their employees are consistent with the organizations' objectives and strategies". This understanding of management control explicitly encompass informal controls, personnel and cultural controls, in terms of Merchant. One of the most recent frameworks is proposed by Malmi and Brown (2008). They prefer the term "package" to "systems" as the concept of a package indicates that individual systems are designed and implemented (possibly by different actors and at different points in time). Central to the package approach is the idea that management control directs employee behaviour through different forms of control. As said before in paragraph 2.5.1, when the different forms of control are interdependent, intentionally used together to solve the same

4 The terms "clan control" and "social control" are often used synonymously. However, Ouchi's (1979: 838) definition of clan control requires that there be a norm of reciprocity, the belief in a source of legitimate authority and social agreement on the range of shared beliefs and values for a "clan" to exist. Social controls can exist when there is agreement on purposes or outcomes, without there necessarily being shared belief systems.

control problem, the term management control system should be preferred (Grabner and Moers, 2013).

Obviously, both hard and soft controls play a role in supporting organizational objectives and drive organizational performance. It is important, however, to ascertain which hard and soft controls are relevant and in what mixture it can reach the largest positive impact on the achievements and results of the organization.

2.5.4 Types of hard controls

As already introduced in chapter 1, hard controls refer to formal efforts to influence employees' behaviour such as rules and regulations with respect to planning, budgeting, spending, and registration, formal descriptions of job authority, and separation of duties (Merchant and Van Der Stede, 2012). These hard controls should be seen as the necessary rules of the game. Without them, no one would know what is right or wrong. Hard controls constitute the foundation of all management control practices in organizations (e.g. Merchant, 1982) particularly in government-led public sector organizations. It aligns with the development of the bureaucracy as an archetype of modern organizing (Zenger, Lazzarini and Poppo, 2002).

The choice for the types of hard controls in this study are taken from the 1992 and 2013 COSO Internal Control Integrated Framework⁵ and Merchant and Van der Stede (2012) and adjusted to the use within the Dutch government sector. Except for recording, COSO (2013) mainly discusses hard controls in the component 'control activities'. Control activities are *'the actions established through policies and procedures that help ensure that management's directives to mitigate risks to the achievement of objectives are carried out. Control activities are performed at all levels of the entity, at various stages within business processes, and over the technology environment. They may be preventive or detective in nature and may encompass a range of manual and automated activities'* (COSO, 2013: 4). The classical instruments in formal control are segregation of duties, internal auditing, procedures and rules, recording and risk analysis.

Segregation of duties involves breaking up the tasks necessary for the accomplishment of certain sensitive duties, thus making it impossible or at least difficult, for one person to complete the entire task on their own (Merchant and Van der Stede, 2012: 82). Often this is the extent to which the responsibility for recording, authorizing and approving transactions is divided between different employees (COSO, 2013).

Internal auditing is a check on the adequacy and the effectiveness of the organization's other controls. The internal controls are the door through which internal auditors examine and evaluate the organization's functioning (Eden and Moriah, 1996: 262). *Internal auditors* as the opposite of *external auditors* are employees of the company they are auditing and often referred to as "the eyes and ears of management" (Merchant and Van der Stede, 2012: 622). *Internal auditing processes* are intended to increase the organization's accountability and transparency.

⁵ In line with Vink and Kaptein (2008: 259)

The *procedures and rules* within an organization – often derived from, or aligned with external rules and regulations, such as governmental laws and contracts – are used to guide the execution of the process in the right way. Scholars in the social sciences have recognized that rules enable action in organizations and everyday life (Berger & Luckmann, 1966; Ganz, 1971; Hayes, 1989). Gil-Garcia and Martinez-Moyano (2007: 273) define rules as “probabilistic generalizations of behaviour” and systems of rules as “the set of written organizational codes (called rules) and unwritten organizational norms (called norms) that conditions action in organizations.” Procedures are the operationalization of the rules, mostly visible, paper instructions, which describe the steps the employee has to go through while executing their part of the process. These descriptions have to make clear to the employees how they are expected to act in the right way.

Recording. Like other business resources of materiel, labor and capital, information is vital to the survival of organizations (Hall, 2011: 4). Every day vast quantities of information flows to decision makers and other users to meet a variety of needs. A distinction can be made between a horizontal and a vertical flow of information, which reflects the different purposes of information. The horizontal information flow supports operational-level tasks with highly detailed information about events such as the use of labor and materials in the production process and internal transfers of resources from one department to another. The vertical flow distributes downward from senior management to junior managers and operational personnel in the form of instructions, quotas and budgets. In addition, summarized information concerning operations and other activities flows upward to managers at all levels. Management uses this information for planning and control purposes. Most organizations use information systems to set the formal procedures by which data are collected, processed into information and distributed to users (Hall, 2011: 7). According to Maas, van Fenema and Soeters (2014: 88) many organizations have implemented an enterprise resource planning (ERP) system over the past decades. ERP systems are commercial software packages that integrate the information flowing through a company—financial, accounting and customer information. These systems offer organizations benefits such as improved integration of business processes, improved decision-making and higher profitability (Dery, Grant, Harley and Wright, 2006).

Risk analysis is defined by The Society of Risk Analysis as “risk assessment, risk characterization, risk communication, risk management, and policy relating to risk, in the context of risks of concern to individuals, to public and private sector organizations, and to society at a local, regional, national, or global level.” (Aven, 2012: 1648). As Kaplan and Garrick (1981: 11) state: we are not able in life to avoid risk but only to choose between risks. Rational decision-making requires, therefore, a clear and quantitative way of expressing risk so that it can be properly weighed, along with all other costs and benefits, in the decision process. In analyzing risk we are attempting to envision how the future will turn out if we undertake a certain course of action (or inaction). Fundamentally, therefore, a risk analysis (or risk assessment) consists of an answer to the following three questions: (i) What can happen? (i.e., What can go wrong?) (ii) How likely is it that that will happen? (iii) If it does happen, what are the consequences?

Answering these questions leads to a list of outcomes or “scenarios” (Kaplan and Garrick, 1981: 13).

These aspects of management control belong to the realm of the formal organization as they are written down in officially approved, often legally based documents. We expect these forms of hard controls to have an effect on the general quality of the financial and material resources management in the organization. However, this impact is not likely to be straightforward. Obviously, one can hypothesize that few or too little elaborated *internal auditing* and *rules and procedures* will negatively impact on the dependent variables that we study. Without issuing and maintaining adequate rules, procedures and internal auditing, organizations tend to experience serious internal and external problems, particularly in the public sector (e.g. Petrovits, Shakespeare and Shih, 2011). Rules, procedures and internal auditing constitute the positive, technical function of the formal bureaucracy as they provide guidance to the employees to display behaviour that is in accordance with the organization’s goals (e.g. Adler and Borys, 1996; Vlaar, van den Bosch and Volberda, 2006).

Wilson (1989: 163, 164) pointed out that military organizations – at least during peacetime conditions – are bureaucracies or procedural organizations *par excellence*. This characteristic refers to the importance of hierarchy and rules and regulations in the organization. These are not static phenomena (Soeters, 2000: 468). Adler and Borys (1996) made an interesting distinction between *coercive* and *enabling* bureaucracies. In coercive bureaucracies employees are provided with frames of reference to help them do their jobs more effectively and reinforce their commitment. In enabling bureaucracies procedures are designed to give employees an understanding how their tasks fit in the bigger picture, enabling them to work properly. So in both types of bureaucracies rules and procedures exist, but in the coercive form “bad” non-contributing rules dominate, whereas in the enabling bureaucracy “good” rules are predominant which are taken for granted and are rarely noticed (Perrow, 1986). According to Adler and Borys (1996: 82, 83), especially in organizations with a high degree of asymmetry of power between managers and employees and organizations with few “reality checks” of external influences, the coercive bureaucracy is advocated. Research (Soeters, 1997; Soeters & Recht, 1998) shows that military organizations as compared to business organizations are more coercive caused by the larger hierarchy and the degree to rules orientation. However, more recent research (Soeters, 2006: 244) suggests the character of the bureaucracy is likely to change gradually from coercive toward more enabling. In this kind of bureaucracy employees can, within the group’s informal norms, behave fairly autonomously and in a self-steering or empowered way. Recent developments of information and communication technology bring an increasing degree of empowerment for ordinary employees, i.e. more discretionary space to do right or wrong (Roth, 1998). Such IT developments – perhaps paradoxically – lead to more control of *and* empowerment for workers (Maas et al., 2014).

Thus, one can question if (too) much of these hard controls will be very positive. Issuing rules and procedures tends to elicit behavioural reactions – indifference, resistance, alienation - among staff that induces management on their turn to strengthen (the application of)

the rules and issue even new ones (e.g., Adler and Borys, 1996). This particularly pertains to rules and procedures that are not deemed to be legitimate in the organization (Tyler and Blader, 2005: 1145). At the end of the day this may lead to so-called “vicious circles of bureaucracy” in the organization that hamper the adequate functioning of the organization as a whole (Masuch, 1985: 18). Next to this effect, a high degree of internal auditing may lead to revealing more problems than would have been detected otherwise (Tyler and Blader, 2005: 1150). Therefore, it is important to realize that the more control measures and regulations support people’s basic needs for competence, autonomy and relatedness, the more likely it is that people internalize and integrate the socially sanctioned values and norms, in other words, act from a moral frame (Six and Lawton, 2013: 650).

2.5.5 Types of soft controls

As mentioned before, soft controls are the informal, intangible organizational practices that are of importance to enhance and sustain proper employee behaviour and organizational achievements (Kaptein, 2011a). They are associated with commitment of employees who regulate their behaviour themselves and external factors with a more implicit character to guide employees towards careful behaviour. Informal, soft controls play a role in getting and keeping the organization and its employees on track, i.e. in making them do what the organization wants them to be doing. In general, informal practices and institutional arrangements within the organization, often through so-called personnel, behavioural and cultural controls, are deemed to have a significant impact on the organizations’ and employees’ achievements (e.g., Abernethy and Brownell, 1997; Merchant and Van der Stede, 2012).

Research was performed to demonstrate the influence of informal practices that are related to the organizational culture, climate and leadership (Treviño, Weaver and Reynolds, 2006; Kaptein, 2008). In this research stream, Kaptein (2008; 2011a) developed a measurement of aspects of ethical behaviour in organizations, the Corporate Ethical Virtues Model (CEV model). This CEV Model mainly results from Solomon’s virtue-based theory of business ethics (1992, 1999, 2000, 2004). This theory contains that in order to excel morally, individual business people as well as business organizations should possess certain virtues. Following Collier (1995), Kaptein (1998) posits that the virtuousness of a corporation can be determined by the extent to which the organizational culture stimulates employees to act ethically and prevents them from acting unethically. To define these virtues, Kaptein conducted a qualitative analysis of 150 actual cases that included a variety of types of unethical employee conduct that was (partly) caused by the organizational culture. The outcome of his analysis and categorization of the organizational factors was seven virtues that contributed to the unethical conduct of employees: *clarity, congruency, feasibility, supportability, transparency, discussability and sanctionability*. The first two virtues especially relate to the self-regulating capacity of the organization, the next two virtues to the self-providing capacity of the organization, and the last three virtues to the self-correcting or self-cleansing capacity of the organization. Vink en Kaptein (2008) in a way have been translating these seven

virtues, which are to be regarded as soft controls, so that they can be applied to unlawful or unauthorized acting.

Clarity refers to the normative expectations in the organization regarding the conduct of employees; are the ethical standards clear, comprehensive and understandable? Is there a guiding frame of reference? If so, the employees know what to do in displaying the behaviour that suits the organization best. Kaptein (1998) posits that the more employees are left to their own discretion and moral intuition without a guiding organizational frame of reference, the higher the risk of unethical conduct.

Congruency concerns the alignment between the expectations in the organization and concrete management behaviour. Therefore the aspect of leadership and managerial role modelling is important. Leadership displaying consistency between expectations in the organization and concrete management behaviour, as one form of soft controls, is likely to have a large effect on what the organization wants to achieve in terms of effective and proper employee behaviour and organizational results (e.g., Yukl, 2012; Kaptein, 2011a). Managerial and supervisor conduct serves as an example of proper employee behaviour or it acts as a deterrent of inappropriate behaviour. According to research of Vogelaar and Kramer in the military (2004: 410) traditional coercive styles of leadership are in the process of being replaced by acting according to the “commanders intent”. The general message is that peace support operations bring different challenges and require commanders at many hierarchical levels to be “thinking commanders” rather than only “rule-following commanders.” This change in focus requires a command system in which responsibilities and authorities are delegated throughout the command line in order to stimulate initiative and leadership at all levels. This system is well known under the label “mission command” (Spacie, 2001) and it entails, for commanders at many hierarchical levels, the “freedom to make decisions in a situation that one is faced with without referral, but operating within set guidelines and in pursuance of a superior’s intent.”

Feasibility refers to the extent to which the organization creates conditions enabling employees to comply with the expectations they are facing. It is important that organizations provides sufficient time, budgets, equipment, information, and authority to management and employees to fulfil their responsibilities (Kaptein, 2008: 925). Merchant and Van der Stede (2012) add that personnel controls help ensure that each employee is able to do a good job, if these come along with the resources (e.g. information and time) and the capabilities (work experience and skills through education and training) that are needed to do the job. If these conditions are fulfilled in a satisfactory manner, it will be possible for employees to conduct their task properly without intensive steering from management and supervisors.

Supportability refers to the individual’s identification with, involvement in and commitment to the normative expectations of the organization and the extent to which the organization stimulates this (Kaptein, 2008: 926). Commitment is thought to be desirable because a culture characterized by demotivation, mistrust and dissatisfaction can be a breeding ground

for unwanted behaviour (e.g. Kaptein, 2011a: 849). Tyler and Blader (2005: 1144) found that when employees are encouraged to identify with the values of the organization they are intrinsically motivated to comply with the standards of the organization. Employee conduct is even better guided by intrinsically oriented self-regulatory mechanisms than by command-and-control steering.

Transparency or visibility is defined as the degree to which employee conduct and its consequences are perceptible to those who can act upon it, that is colleagues, supervisor, subordinates, and the employee(s) concerned (Kaptein, 2008: 926). This is important because employees can only be held responsible if they know, or could have known, the consequences of their actions and behaviour. According to Bovens (1998: 125) is the chance that one might be called to account for one's individual contribution to the illicit or morally reprehensible conduct of an organization after the event (the so called passive responsibility) can exert a strong positive influence on the conduct of individual functionaries beforehand (the so called *active* responsibility). If they are unaware of (possible) negative consequences, they will experience no urgency to reflect, account for and alter their conduct. In organizations with a high level of transparency employees will succeed in modifying or correcting their behaviour of that of their co-workers, supervisors or subordinates (Kaptein, 1998). Conversely, low transparency diminishes the control environment, which widens the scope for careless behaviour.

Discussability relates to the opportunities employees see to raise and discuss current practices in the organization. It refers to the idea that if employees experience an atmosphere to be open to discussion they are more likely to show proper conduct and prevent mishaps and inappropriate behaviour.

Sanctionability concerns the degree to which inappropriate employee behaviour will be punished or, on the contrary, condoned and tolerated by management, and the degree to which appropriate behaviour will be rewarded. This last soft control refers to the dynamics of punishment, condoning and rewards and their impact on employee behaviour (see also Ashforth and Anand, 2003).

In this study the CEV-model of Kaptein (2008) is used to determine the degree to which soft controls are used within the Dutch Defence organization.

2.6 Subconclusion theoretical framework

The relations between the various elements will be formulated in specific hypotheses and analyzed in detail in the next chapters. In accordance with the previous review the main direction of these expected relations is illustrated In Figure 2-1:

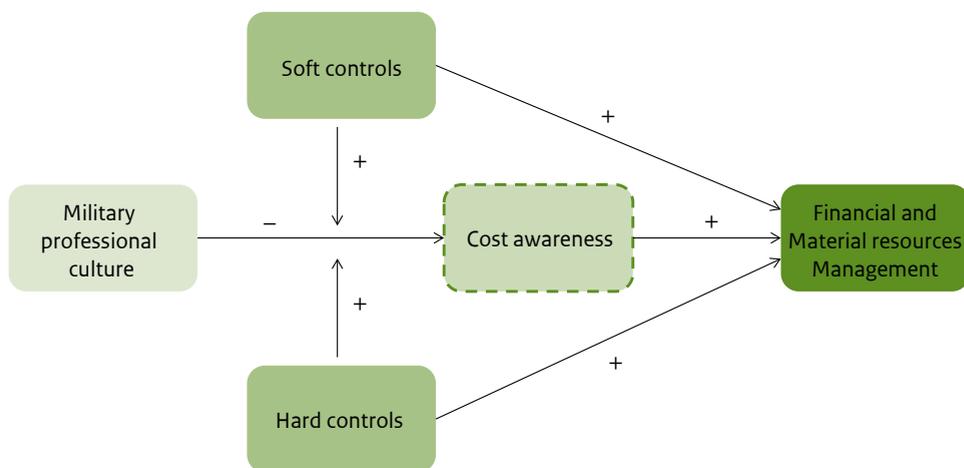


Figure 2-1 Theoretical framework

The typical culture of an organization can affect the extent to which managers and employees deal carefully with the financial and material resources of their organization. The culture of an organization consists of the prevailing beliefs about what is good and bad (Schein, 1985). The influence has a positive impact on financial and material resources management if the managers and employees of an organization have a right and strong common understanding of what is careful and careless management of resources. If this strong shared understanding is missing or the common understanding is not focused on careful management this has a negative impact on the actual management of financial and material resources.

Defence organizations are a prime example of public sector organizations. They serve a valued public cause, whose “life-or-death” importance - ideologically and in the reality of, for instance, the Afghan fields - prevails over money and material issues. In this they compare with health care organizations or welfare organizations (Seibel, 1996: 1019). The extent to which cost awareness is present among military employees is foreseen to be influenced by the existence of subcultures between the “hot” and “cold” organization (Soeters et al., 2000 and 2006). Employees in the operational organisation parts, especially those who are deployed on a regular basis, may feel that decisions regarding their actions to perform the three main tasks should not be influenced by other goals, such as lowering costs (Feldman et al, 1998; Snider, 1999). Moreover, these cultural aspect are expected to be reinforced due to on-the-job experience when an employee is deployed, because for those employees performing the three main tasks is rewarded more directly than following financial and administrative procedures. Nonetheless, the supportive organisational parts are less concerned with these main tasks, since those parts are more comparable to an ordinary office organization, where bureaucracy with hierarchies, specialization, rational decision making, strategic planning, paperwork as well as quality and cost control are the main components (Soeters et al., 2006: 246). This results in the expectation that values and norms concerning the organizational goal of increased financial performance in these parts of the military organization are relatively

more important – which are norms and values that are atypical for the military culture. Therefore it is expected that increasing presence of the military professional culture will lead to decreasing cost awareness. Furthermore one can expect that insufficiently developed cost awareness leads to more careless financial and material resources management.

In addition to organisational culture, different control mechanisms can be applied to stimulate careful management of resources. ‘Hard’ or formal controls are the established, often legally enforced, standards of striving for optimal degrees of management control (Merchant and Van der Stede, 2012). The classical instruments in formal control are risk analysis, internal auditing, segregation of duties and responsibilities, rules and procedures, and recording. These hard controls should be seen as the necessary rules of the game. Without them, no one would know what is right or wrong. Clearly, ‘hard’ or formal (generally legally based) control practices constitute the foundation of all management control practices in organizations, particularly in government-led public sector organizations. As such, they are expected to contribute to careful financial and material resources management. Therefore it is expected that the more hard controls are present in an organization, the more carefully its employees use the financial and material resources of that organization.

However, managers do not keep organizations under control with the help of hard controls only. As already stated in chapter 1, research of a series of high profile corporate collapses and scandals revealed that the causes could not always be found in missing or failing hard controls. This directs our attention to the importance of another kind of controls which are based on the notion that popular values, social sanctions, and widely shared conceptions of right and wrong should play an important role, alongside laws and punishments, in guiding the uses of public resources. Hence, there is an increasing need for soft controls, which imply an emphasis on integrity and ethical values, role modelling, and communication (Roth, 1998; Kaptein, 2008; 2011a). Soft controls are associated with commitment of employees who regulate their behaviour themselves and external factors with a more implicit character to guide employees towards careful behaviour. Leading by example, creating an open atmosphere where dilemmas can be discussed, and rewarding the right and sanctioning the wrong behaviour, are different ways to control employee behaviour. These soft controls are expected to guide employees to behave carefully with respect to the organization’s resources.

Recognizing and applying hard controls gives employees a direction on how one should behave, despite the level of military culture, leading to an increasing carefulness of the management of resources. So it is to be expected that hard controls will diminish the negative relationship between military professional culture and financial and material resources management.

Soft controls align with the idea that employees regulate their behaviour themselves rather than that their behaviour is based on external pressure and sanctions. In as far as an organization has self-regulating, self-sustainable and self-corrective capacity (Kaptein, 2008: 924) it can lead to more careful management of the financial and material resources despite the military culture. Thus it is to be expected that soft controls will diminish the

negative relationship between military professional culture and financial and material resources management.

3

3 Methodology

This methodology chapter describes the composition of the sample, the selection of the interviewees and the way audit reports have been used as a third source of information. Furthermore this chapter describes how the qualitative and quantitative data analyses were performed and how the quality of the research was put into practice.

3.1 Research design

To find empirical evidence for the relations between the variables framed in the theoretical framework which will be further elaborated into hypotheses in the next chapters, this study utilized two different research methods: quantitative research methods in the form of a survey and qualitative research methods in the form of interviews.

The quantitative part is labeled as a cross-sectional survey design (Singleton and Straits, 2005), in which data on a sample (a “cross-section”) of respondents is chosen to represent a particular target population. In this case, the target population is the Dutch Defence organization. The respondents were asked questions with an explanatory goal (Singleton and Straits, 2005), since this study attempted to determine the effects of military professional culture on careful financial and material resources management through cost awareness and hard and soft controls. Subsequently, we tried to ascertain the influence of military professional culture on the two control mechanisms.

In addition we used audit reports at the unit level as another source of information concerning material resources management. All these data enable us to do analyses at two levels: the individual and the unit level.

The whole set-up of the quantitative data structure is displayed in Table 3-1.

	Survey		Auditreports
	Financial management	Material resources management	Material resources management
The individual level	X	X	
The unit level	X (aggregated)	X (aggregated)	X

Table 3-1 Quantitative data structure

The qualitative part of this research is based on semi-structured interviews with commanders and financial specialists that were conducted using a topic-list (Appendix II); this list was quite strict but open enough to broaden or deepen the answers according to the answers and the wishes of both interviewer and interviewees (Singleton and Straits, 2005).

3.2 Quantitative research methods

3.2.1 Sources of information

Most important in this study is to find criteria which measure how careful financial and material resources management is performed. The most straightforward way is to ask the respondents to review the carefulness of the financial or material resources management in their unit. This kind of self-evaluation is used in this study but attempts were made to find other more objective criteria as well. Dependent and independent variables were separated and possible problems with regard to common source bias have been avoided through the use of archival audit reports.

This ambition implied that the criterion for sample selection shifted from the level of the individual respondent to the level of organization units. However, the individual respondents who are employees of those organization units, remain the most important source of information. Through answering the questions of the survey they provide the basic material of the overview of the daily routine in their organization units. Because the responses of the individual employees can be used as the individual level but also in an aggregated manner at the unit level, this study contains analyses at multiple levels which increases the depth of study. In compiling our sample structure, we have addressed various stakeholder groups in the organization to ascertain possible differences in views in financial and material resources management. Those stakeholder groups are the financial and the logistics specialists as well as the commanders, often situated at a higher level (brigade instead of company level). These differences will be displayed in chapter 4.

3.2.2 Sample selection

After consulting representatives of the Taskforce “Improving in a better way”¹ it appeared that the so-called level 4 (sometimes 3) of the categorization of the Dutch Defence organization is the best level to conduct the survey. In operational terms those are the companies in the Royal Netherlands Army (about 100 – 180 full time equivalents), the ships in terms of the Royal Netherlands Navy, the squadrons in terms of the Royal Netherlands Airforce and the districts in terms of the Royal Netherlands Marechaussee. Regarding the Joint Support Command, the Defence Materiel Organization and the Central Staff the larger departments are used.

Because a number of calculations will be made at the level of the organization units², it is necessary to include a few dozens of organization units in the study. Given the fact that the organization is composed of seven organization parts (Army, Navy, Airforce, Marechaussee, Joint Support Command, Materiel Organization and Central Staff) which should be represented in the sample in proportion to their size in, every fifth unit has been randomly selected. This procedure of sample selection leads to a selection of 111 units.

¹ In Dutch: “Beter Verbeteren”.

² The expression ‘unit’ is in this study not necessarily the same as the organic units of the Dutch Defence organization. For example, depending on the extent of decentralization of authority, the relevant level of independent units for this study can vary.

Tables 3-2 shows the number of units per organization part³.

	Number of units	Number of units in sample
Royal Netherlands Army	259	51
Royal Netherlands Airforce	43	8
Royal Netherlands Navy	91	18
Royal Netherlands Marechaussee	7	5
Defence Materiel Organisation	25	6
Joint Support Command	73	15
Central Staff	44	8
Total	542	111

Table 3-2 Sample information

As said before, the individual respondents who are employees of those organization units are the most important source of information. Yet, not every employee in those units of the Dutch Defence organization is included; only those with responsibilities in financial or material resources management have been approached with the request to fill out the questionnaire. This means that for example soldiers, sailors and individual office workers do not belong to the target group of this study. Therefore the representatives of the Taskforce “Improve in a better way” were asked which employees were suitable for inclusion in the survey. In addition to this, a search on the Intranet for lists of employees and their functions was combined with a search for job descriptions in the MS Outlook address book of the Dutch Defence organization. For each of the 111 organization units on average ten employees with responsibilities in financial or material resources management have been asked to fill out the questionnaire. Every questionnaire was accompanied by a letter of the commander of the organization part to which the relevant organization unit belongs. This letter underlined the relevance of participation in the study. The response rate per organization part is illustrated in Table 3-3.

	Sent	Received	Not usable	Net-response	Response rate
Royal Netherlands Army	612	298	19	279	46%
Royal Netherlands Airforce	103	68	1	67	65%
Royal Netherlands Navy	40	28	0	28	70%
Royal Netherlands Marechaussee	95	62	0	62	65%
Defence Materiel Organisation	95	49	0	49	52%
Joint Support Command	167	96	1	95	57%
Central Staff	50	21	1	20	40%
Total	1.162	622	22	600	52%

Table 3-3 Response per organization part

3 Due to reasons of availability of data the number of units in the analyses is lower than 111, as will become clear in chapter 7.

Of the total of 111 selected units 571 employees with responsibilities in the area of finance and 436 employees with responsibilities in the area of material logistics (in total 1.162 employees) were asked to fill out a hard copy questionnaire. The survey was conducted in 2010 and 2011. The net response of the survey was 600 respondents. We used listwise deletion (Field, 2009: 231) to deal with missing values.⁴ This procedure led to two sub-samples of 219 respondents on financial management (= 38%) and 178 respondents on material resources management (= 41%) respectively for the analysis on the level of the individual respondent (chapter 5 and 6).

Per participating organization unit different type of questionnaires have been forwarded to both the commander and the financial and logistics specialist. In the questionnaire for the commanders were included the questions to determine the military professional culture and cost awareness and was asked for a review of the carefulness of the financial or material resources management in their unit. Next to the request to assess the military culture and cost awareness, the financial specialists were asked to review the carefulness of financial management and logistic specialists were asked to review the carefulness of material resources management. Both questionnaires of these special functionaries were supplemented by questions regarding the design, existence and operating effectiveness of the hard controls in their units. An overview of which survey questions were asked to which group of respondents is presented in Table 3-4:

	Commanders	Financial Specialists	Logistic specialists	Employees financial management	Employees material resources management
Control variables	V	V	V	V	V
Cost awareness	V	V	V	V	V
Military culture	V	V	V	V	V
Hard controls	-	V	V	V	V
Soft controls	-	-	-	V	V
Financial management	V	V	-	V	-
Material resources management	V	-	V	-	V

Table 3-4 Overview survey questions per group of respondent

The specific questionnaires of the commanders, the financial and logistic specialists are only used for giving insight in the different perspectives as an illustration of the results in the

⁴ In line with Field (2009: 231) we used listwise deletion which means that if a person has a missing value for any variable, they are excluded from the whole analysis. With the alternative method, pairwise deletion we could analyze larger samples (N = 238 instead of N = 207 in financial management; N = 197 instead of N = 170 in material resources management) but this did not lead to different results. The same independent variables have a significant influence on the dependent variables using both methods.

qualitative analysis in Chapter 4⁵. The response rate per type of questionnaire is shown in Table 3-5.

	Financial management	Material resources management	Logistic specialist	Financial specialist	Commander	Total
Royal Netherlands Army	127	114	13	12	13	279
Royal Netherlands Airforce	23	24	6	7	7	67
Royal Netherlands Navy	6	5	4	6	7	28
Royal Netherlands Marechaussee	25	23	5	5	4	62
Defence Materiel Organisation	25	14	2	5	3	49
Joint Support Command	43	33	6	5	8	95
Central Staff	13	0	0	4	3	20
Net-response	262	213	36	44	45	600
Total sent	571	436	45	51	59	1.162
Response rate	46%	49%	80%	86%	76%	52%

Table 3-5 Response per type of questionnaire

3.2.3 Operationalisation

Dependent variable financial management

As said before, according to the Improvement Plan of Financial management of the Dutch Defence organization financial management consists of complying to procedures and internal and external regulation when executing of, recording of and accounting for the financial consequences of transactions carried out by the Dutch Defence organization (Ministry of Defence, 2009a: 13). The authors of the Improvement Plan stress to say that orderly, controllable and legitimate financial management is not the responsibility of the controller department of the organization only. It starts with the phase of identification of requirements with respect to materiel, personnel and information provision. In this phase the employee who articulates the requirement, the authorising officers (including the line managers) and policymakers are involved. Then acquirers are activated to conclude contracts. After that the products (goods and services) will usually be received by the ones who originally articulated the requirement. And finally, the controller and the Financial Services Department will ensure financial settlement and recording.

The Improvement Plan of Financial Management classifies six financial flows that match the financial statement of the Dutch Ministry of Defence:

⁵ As commanders, financial and logistic specialists oftentimes have responsibilities beyond the unit level (for instance brigade instead of battalion), the number of these respondents are lower than the number of organization units. This particularly pertains to the organization units in the Army.

1. *Expenditures*: The expenditure process begins when an invoice is received. This invoice is then scanned and recorded. Next verification occurs, where the data of the invoice are compared with the agreements on the order and the receipt information on the declaration of performance. If this verification reveals no errors, the invoice is authorized and finally paid.
2. *Contracted and outstanding liabilities*: The liabilities process starts when an employee articulates a requirement to properly fulfil his or her job. After authorization by the authorizing officer and controller a provisional budget is recorded and the acquirer can start the procurement process. This results in an approved and authorized contract which is finally delivered and paid for. The difference between the contracted liability and the part that is paid for is the outstanding liability.
3. *Receivables and receipts*: The process of receivables and receipts start when preparing a request for setting up a claim. For this purpose a unit of the defence organization has to produce a source file. After authorization by the budget holder and controller a claim is registered by the department of receivables. The department of receivables then sends an invoice (after authorization). After the payment the claim is debited and the receipt is registered. Because of the cohesion between receivables and receipts they are dealt with together.
4. *Advances*: The process of advances can be divided into material or personnel advances. The process with respect to the material advances starts with arrangements devised with a supplier in a contract. If an advance has been given, the payment is registered as an advance and at a later stage (in the case of delivery of the performance) the advance is credited to an account. The process of a personnel advance starts at the request of an employee for an advance. This can be both a functional and a personal advance. After authorization of the request the advance is paid. The advance is financially settled (credited to an account or refunded) in line with the agreements made.
5. *Liquid assets*: all financial resources immediately available to the defence organization.
6. *Accounts outside the budget*: This kind of transactions are not in the budget. These accounts outside budgetary context are characterized by: 1. the defence organization receiving money and passing it on to a third party, or; 2. the defence organization paying money and receiving it back from a third party.

A measurement for financial management in the respondents' organizational units was developed following the six financial flows which are classified in the Improvement Plan of Financial management. The corresponding six items of the following type, "In my view the management of expenditure in my unit is", rated from 1 (= very careless) to 6 (= very careful), were proven to be a reliable scale ($\alpha = 0.93$). This classification in financial flows has

been chosen for various reasons. The object of financial management is completely covered, there is an association with the approach of internal and external auditors and the chain result (of the successive links that carry out activities in these flows) is the central focus

Dependent variable material resources management

According to the Regulation of Material Resources Management of the Dutch Defence organization (Ministry Of Defence, 2009c) material resources management is the care for movable property (other than financial resources) from the time of receipt to the moment of disposal. The Ministry of Defence is by far the largest manager of material resources within the Dutch national government. The material resources management for the defence organization should be legitimate, orderly, controllable and efficient and as such consistent with the code of conduct of the defence organization. This starts with 'prudent-man regulation' that applies to all defence employees. Only then it is certain that the equipment is available in the right amounts and the right condition for the execution of the task.

In the Improvement plan of Material Resources Management of the Dutch Defence organization (Ministry Of Defence, 2009b) four themes are differentiated, namely:

1. *Management of ammunition:* the organisational elements have both ammunition linked to a weapon system and ammunition not linked to a weapon system in use. To ensure that ammunition is managed adequately and to prevent unlawful use of ammunition, it is necessary to register the management of ammunition and to secure the implementation at the defence components.
2. *Management of weapons:* weapons are in service for personal armament, defence, training & instruction. To ensure that weapons are managed adequately and to prevent unlawful use of weapons, it is necessary to register the management of weapons and to secure the implementation at the defence components.
3. *Management of cryptographical equipment:* to ensure that crypto equipment (equipment to transform normal information in encrypted information) is managed adequately and to prevent unlawful use of crypto equipment, it is necessary to register the management of crypto equipment and to secure the implementation in the organization.
4. *Management of other material resources than ammunition, weapons and cryptographical equipment:* the care for movable property (other than financial resources) from the time of receipt to the moment of disposal.

The first three, management of weapons, management of ammunition and management of cryptographical equipment, are called *sensitive* material management since inaccuracies in these types of material management almost instantly lead to far greater problems with potential consequences for the society as a whole.

A measurement for material resources management in the respondents' organizational units was developed following the four themes of the Improvement Plan of Material Resources Management. The corresponding four items of the following type, "In my view the management of weapons in my unit is", similarly rated from 1 till 6, were used to measure the respondents' assessment of material resources management ($\alpha = 0.73$).

Independent variable cost awareness

We did not find an instrument to measure cost awareness in defence organizations. As previously described, it is however possible to draw a parallel between defence and health care organizations. In both kind of organizations professionals are employed who consider saving human lives as the highest purpose, perhaps irrespective of the costs involved. In healthcare, several studies into cost awareness have been conducted. Allan, Lexchin and Wiebe (2007) conclude that doctors ignore the cost of drugs, combined with the low estimates of the price of expensive medicines and high estimates of the price of cheaper medicines. Bovier et al. (2005) used an instrument to measure cost awareness which was previously developed by Goold, Hofer, Zimmerman and Hayward (1994).

In this study attitude toward costs (cost awareness) was measured with this validated 6-item instrument derived from a study among medical doctors. Two items explore the doctors' opinion about health care costs in general, three items explore their attitudes regarding the costs of tests and procedures, and a last item examines the importance of out-of-pocket payments. The items were originally scored on a five-point Likert scale, but in this study we used a six-point Likert scale to force the respondents to agree or disagree with the statements: 1 (=strongly disagree) till 6 (=strongly agree). Negatively worded items were reversed so that a higher score would mean greater cost awareness.

In this study the instrument of Bovier et al. (2005) is translated from the English original to a Dutch version and was adapted to the military context. For two items a distinction has been made between the work floor and the executive level (leading to an increase from six to eight items). Perhaps because of these adjustments only four of the eight items formed a reliable scale with an Cronbach α of .694. These items were as follows: "There is currently too much emphasis on costs in my unit.", "Within my unit people worry too much about the costs", "The managers of my unit worry too much about the costs", "It is unfair to ask employees of the defence organization to be cost aware and at the same time putting the protection of human lives at the first place". The translation and remaining items are shown in Table 3-6.

Original English cost awareness scale for use in healthcare organizations	Dutch translation of the cost awareness scale for use in defence organizations	Final list of items cost awareness for use in defence organizations
Trying to contain costs is the responsibility of every physician.	Ik vind het beheersen van de kosten een verantwoordelijkheid van iedere defensiemedewerker binnen mijn eenheid.	
There is currently too much emphasis on costs of tests and procedures.	Er ligt momenteel te veel nadruk op de kosten.	There is currently too much emphasis on costs in my unit.
Doctors need to take a more prominent role in limiting use of unnecessary tests.	Defensiemedewerkers moeten een grotere rol spelen in het beperken van onnodige activiteiten.	
	Leidinggevenden bij defensie moeten een grotere rol spelen in het beperken van onnodige activiteiten.	
Doctors are too busy to worry about the costs of tests and procedures.	Defensiemedewerkers maken zich te veel zorgen over de kosten.	Within my unit people worry too much about the costs.
	Leidinggevenden bij defensie maken zich te veel zorgen over de kosten.	The managers of my unit worry too much about the costs.
The cost of a test or medication is only important if the patient has to pay for it out-of-pocket.	De kosten van activiteiten (bijv. in het kader van maatschappelijke dienstverlening) zijn alleen van belang als een gebruiker buiten de defensie-organisatie ze zelf zou moeten betalen.	
It is unfair to ask physicians to be cost-conscious and still keep the welfare of their patients foremost in their minds.	Het is onredelijk om te vragen van defensiemedewerkers om kostenbewust te zijn en tegelijkertijd het beschermen van mensenlevens op de eerste plaats te zetten.	It is unfair to ask employees of the defence organization to be cost aware and at the same time putting the protection of human lives at the first place.

Table 3-6 Translation and remaining items cost awareness

Independent variable hard controls

The five hard controls in this study were measured by means of 15 items of the following type: “Within my unit separation of duties contributes to careful financial (material resources) management”. The well-known elements of administrative organization and management control, such as internal control, description of procedures and rules, separation of responsibilities and duties, recording and risk analysis were all included (e.g., Merchant and Van der Stede, 2012). All hard controls were measured by means of three items regarding the design, existence and contribution. The items were rated from 0 (= I don’t know), 1 (= strongly agree) to 6 (= strongly disagree) and all items together turned out to constitute a reliable scale, with an α of 0.92.

Independent variable soft controls

The measurements of the soft controls were based on the Corporate Ethical Virtues Model developed and validated by Kaptein (2008). For this research the original questionnaire was adapted to the different object of study. The items were of the following type: “My direct supervisor is leading by example in case of financial management”. All together for financial

management 35 items were rated from 1 (= strongly disagree) to 6 (= strongly agree); they proved to constitute one reliable scale with an α of .93. All together for material resources management 27 items were rated from 1 (= strongly disagree) to 6 (= strongly agree); they proved to constitute one reliable scale with an α of .93.

Independent variable military professional culture

This study aimed to measure the extent to which a military professional culture would be dominant in the different units. Since there is no measuring instrument, we registered the degree to which each respondent would identify with *being a core military person*, ranging from low (=civilian) to high (=special forces with extensive deployment experience) as a proxy for military professional culture. The idea here was that civilians would care more about managing the organization's financial and material resources properly, whereas 'core' military people would care less, focused as they are on the more salient aspects of the organization's core business, which is the military during operations in so-called 'hot' circumstances (e.g., Soeters, 2000). We constructed the proxy for military professional culture by asking the respondents three questions (see Table 3-7):

Question	Possible answers
Are you military personnel or civilian?	1 = civilian 2 = military personnel
How often have you been deployed?	1 = never or non applicable, 2 = 1-3 times, 3 = > 4 times
Which of the services are you in?	1 = Secondary supporting function Military Administration (Army, Navy or Air force) / Military sports / Meteorology / Military Psychological and Social Services 2 = Primary supporting function Explosive Ordnance Disposal Service (EOD) / Military engineering / Technical support / Communications and Information / Supply and transport / Military medical support / Air traffic control / Logistics / Military police, 3 = Combat function Infantry / Cavalry / Artillery / Fleet / Operational pilots 4 = Special Forces Marines / Commandos / Air mobility

Table 3-7 Questions military professional culture

By combining the answers to the three questions mentioned before we assigned values from 1 till 13 (see Table 3-8). These values estimate for each respondent if he/she is a core military person, ranging from low (=civilian) to high (=special forces with extensive deployment experience).

A high score means that there is more influence of the military core values within the organization culture⁶.

Military or civilian employees	Number of deployments	> 4 times	1 – 3 times	never
Military employee	Special forces	13	12	11
	Combat function	10	9	8
	Primary supporting function	7	6	5
	Secondary supporting function	4	3	2
Civilian		Not applicable	Not applicable	1

Table 3-8 Proxy military professional culture

Control variables

The hypotheses are controlled for a number of variables which are expected to affect the supposed relationships. We asked the respondents' *gender, age, education level and span of control*.

Many studies report sex differences in ethical perceptions in a business environment. The general conclusion of this research stream is that men are more likely than women to behave unethically and women are significantly more likely than men to view certain questionable acts as unethical (Beu, Buckley and Harvey, 2003). In addition, Samnani, Salamon and Singh (2014: 241) found support for the moderating effect of gender. In their study males were likely to engage in counterproductive workplace behaviour more frequently than females with similar high negative affect and high moral disengagement. In our study there is an unequal distribution of male and female respondents (93% male and 7% female).

According to Kim and Choi (2003) both age and personal ethical ideology (idealism and relativism) has significant effects on the ethical judgment of professional ethics. Older respondents show high idealism and low relativism, and a higher level of agreement with professional ethics. In this study the majority of respondents is between 41 and 50 years old (21-30 years: 7%; 31-40: 17%; 41-50: 44%; 51-61: 31% and >61: 1%).

Another control variable is education level. Education was found to have both a positive and neutral impact on ethical decision-making (Craft, 2013: 238). So not all studies could find a significant effect but most of the time results show that people with a higher level

⁶ '1' is a civilian who has never been deployed; '2' is a soldier in a secondary support function who has never been deployed; '3' is a soldier in a secondary support function who has been deployed for 1-3 times; '4' is a soldier in a secondary support function who has been deployed more than 4 times; '5' is a soldier in a primary support function who has never been deployed; '6' is a soldier in a primary support function who has been deployed for 1-3 times; '7' is a soldier in a primary support function who has been deployed for more than 4 times; '8' is a soldier in a combat function who has never been deployed; '9' is a soldier in a combat function who has been deployed for 1-3 times; '10' is a soldier in a combat function who has been deployed for more than 4 times; '11' is a soldier of the special forces who has never been deployed; '12' is a soldier of the special forces who has been deployed for 1-3 times; '13' is a soldier of the special forces who has been deployed for more than 4 times.

of education report behaviour such as the acceptance of gifts and favours in exchange for preferential treatment as more unethical (Deshpande, 1997: 83).

The last control variable is span of control. Detert, Treviño, Burris and Andiappan (2007) suggest that managers should be able to reduce undesirable employee behaviours and their associated costs simply by reducing the opportunity via increased 'managerial oversight' or reducing the span of control.

3.2.4 Quantitative methods

Validity and reliability

Since the procedures to construct and administer the questionnaire – as explained in the previous sections - were followed according to standard methodological practices (Bryman, 2016), the validity and the reliability of this study can be deemed adequate in general.

With respect to the quantitative data analysis, principal component analyses was conducted to assess the validity of the dependent and independent variables (Field, 2009). All preliminary analyses showed satisfactory results: the Kaiser-Meyer-Okin values all met the recommended value of .6 (Kaiser, 1974: 35) and Bartlett's test of Sphericity reached statistical significance (Bartlett, 1954). However a small number of items were excluded from further analysis because their factor loadings did not meet the criterion of .4 (Stevens, 2002).

As indicated previously, Cronbach alpha coefficients were computed on the remaining items to assess a satisfactory internal reliability of the variables of at least $\alpha = .7$ (Field, 2009: 673). The description of the items as well as the results of the principal component and reliability analysis of the two dependent variables and the independent variables of the hard and the soft controls are included in Appendix III.

Regression analyses

Hierarchical (block wise entry) multiple regression analyses as well as techniques to discover possible mediation (Baron and Kenny, 1986: 1176) and moderator effects (Allison, 1998: 167; Chia and Koh, 2007) were applied to test the hypotheses (Field, 2009).

Common source bias

We need to add a final word on common source bias. Even though our dependent variables are based on self-reports (from the same respondents who provided the information on the independent variables), we would argue this is not a major problem in this study according to the criteria of Conway and Lance (2010). The items of the different constructs do not overlap, the respondents' scores regard the organizational unit and not the individual participants themselves – increasing the opportunities to voice critical judgments about the issues at stake. Ideally also a "harder indicator" must be used to assess the functioning of the organization

in the area of careful financial and material resources management. After consulting representatives of the Taskforce “Improving in a better way” we had to conclude that such hard indicators, that are applicable for the entire Dutch Defence organisation, do not exist. For example, at the organisation level of companies in the Army, there is a fairly good indicator of management of weapons. But this indicator cannot be applied to other parts of the Dutch Defence organisation or other aspects of financial and material resources management.

As a result only the views of the financial specialist and/or the (deputy) commander of the unit regarding the carefulness of financial and material resources management remain. These will be discussed in chapter 4 on the basis of the semi-structured interviews and preliminary statistical tests (ANOVA). In addition, in chapter 7 a comparative analysis between the assessment of the individual respondents regarding the material resources management in their units and the assessment of the official auditors regarding the material resources management in the same units will be conducted. Hence, this analysis produces a validation of the self-reports of the respondents in the survey with data derived from the official reports of the internal audit units of the Dutch Defence organization, at the unit level. This validation could only be conducted regarding the management of sensitive material resources. Reports on other types of resources management – financial resources and other material resources – were not available at the organisational levels that we used in the survey or were too heterogeneous to make a valid analysis. It took about 11 days to collect the original audit reports from the Semi Static Archive of the Dutch Defence Organization in Rijswijk (A specimen of an audit report is shown in Appendix IV).

3.3 Qualitative research methods

In this study, next to the survey, data have been gathered by conducting 23 semi-structured interviews. These interviews were conducted in 2010 and 2011⁷. A content analysis of the answers to the open questions in the survey provided additional information. Both sources of information were used to explore the management control practices in the Dutch Defence organization (chapter 4) and to provide the groundwork to better understand the results of the quantitative data analyses.

The account in chapter 4 is in the past tense, referring to the years in which the interviews were conducted. It is difficult to say how valid these descriptive findings are today.

3.3.1 Sample selection interviews

The interviewees were purposively selected from all seven organisation parts of the Dutch Defence organization. Since the study focuses on financial and material resources

⁷ The interviews with the financial specialists were conducted by the author of this dissertation and a student-assistant who worked on her Master thesis. The interviews with the deputy commanders and the survey were conducted by the author of this dissertation.

management and the relating improvement plans, only respondents who could give relevant information about the state of affairs of financial and material resources management and the associated improvement plans were selected. An overview of the interviewees is given in Appendix V.

This sampling method is applied since then people could be selected who were relevant to the research questions. The president of the Taskforce “Improve in a better way”, the director of the cluster “Improvement plan Financial management”, the director “Policy control” and the director “Financial Control”, were selected as respondents. These four respondents were employees of the Head Directorate Finance & Control. This directorate is part of the Central Staff and has the responsibility for the planning and control cycle within the Ministry of Defence. Furthermore, part of the sample were seven (deputy) directors Planning and Control, two heads of Audit departments, three heads of Management Control departments and a staff member of a Management Control department. As can be seen in the topic list in Appendix II, the financial specialists were asked about the problems in financial management, the causes of these problems and the solutions in the form of using hard and/or soft controls. Next to that, the influence of cost awareness and the more general element of organisational culture has been discussed.

Beside these interviews with financial specialists, six out of seven (deputy) commanders of the organisation parts were interviewed⁸. The same questions were posed in the interviews, but the interviewees were also asked to reflect upon the problems in material resources management. These persons were selected since they could give more in-depth information to answer the research question than persons working on a lower level within the organization. Respondents who work on a lower level within the organization are only responsible for a small part of financial and material resources management and therefore are not able to provide a “helicopter view” on financial and material resources management.

The interviews lasted about an hour and during the interview notes were made. These notes were elaborated in transcripts which has been submitted for approval to the interviewees. In some cases the transcripts were slightly adapted based on this respondent validation (Bryman, 2016: 384).

3.3.2 Qualitative data analysis

We used an open coding method of processing the information of the interviews. This means that the information was approached with an open mind so that all possible relevant items were included in data matrices, one for the financial specialists and one for the (deputy) commanders (Miles, Huberman and Saldanã, 2014: 110). The data matrices consist of a vertical row with the different concepts and a horizontal row with an overview of the interviewees. This data matrices were used to visualise the answers of the interviewees relating to the different topics which were talked about in the interviews. After putting the

■
8 An interview with the commander of the Central Staff could not have been arranged.

data in the data matrices, important quotes of the interviewees relating to that specific topic were searched within the transcripts. The quotes of the respondents were then used to build the collective results and to reveal individual meanings. This data matrices summarize the different answers concerning one concept, one relationship or one result. Based on the data matrices, the interviews were pulled apart and it was possible to make comparisons between the interviews and to make statements about reasons or causes for a phenomenon to happen.

3.4 Quality of the study

To ensure the quality of the research the reliability and validity needed to be maximized.

3.4.1 Reliability

To ensure the stability and consistency of this study, all steps taken during the research were described to make the study replicable. The reliability of the survey was improved because most measures are based on predetermined questions. To minimize misinterpretations, the respondents received clear instructions for filling in. Furthermore, most scales in the survey consist of seven items, which makes the results and conclusions more reliable. Last, the surveys were accompanied by a letter from the commander to increase the respondent rate.

The reliability of the qualitative part of the study was ensured by doing respondent validation (sometimes called member validation) afterwards (Bryman, 2016: 384). The transcripts of the conducted interviews were sent back to the interviewees in order to let them check the gathered information and to give an answer on the question whether or not they agreed with the scope of the interview. However, the interviews were held in Dutch and the findings are presented in English. The translation of the gathered information in the interviews could have a negative influence on the reliability since the information might, although this was avoided as much as possible, be interpreted differently in the English language.

3.4.2 Validity

The internal and external validity were also taken into account. The internal validity refers to whether there is a good match between the observation of the researcher and the theoretical ideas which are developed (Bryman, 2016). To ensure the internal validity of this study data triangulation has been applied. Not only the results of the interviews were used to gather information, the results of the survey were analysed in a quantitative way and several documents relating to the financial and material resources management process and the financial and material resources management Improvement plans were analysed. In this way the gathered information by the survey was checked with the interviews and the documents provided within the organization relating to the topic.

External validity, or generalizability, is maximized by the use of a large number of respondents as empirical data. Moreover, the seven organisation parts are proportionally represented, which makes the results generalizable among the majority of the Dutch Defence organization. Nevertheless, the external validity of this study, the degree to which the findings can be generalized to other social settings (Bryman, 2016) is moderate. The results are not likely to be generalized to profit industrial and service organizations, but they can be generalized to a certain extent to military organizations in other countries, particularly in the Western hemisphere as well as to other uniformed organizations such as the police and fireguards. Construct validity is guaranteed because the definition of the concepts and the survey questions are based on well-developed theories.

4

4 Exploring management control practices

As a first step in this empirical study of management control in the Dutch Defence organization we have collected exploratory data from a variety of sources that will be presented and discussed in this chapter¹. First, semi-structured interviews have been conducted with 17 financial specialists and 6 (deputy) commanders of the seven organisation parts, i.e. the four services (Army, Air Force, Navy, Marechaussee), the two supporting divisions and the Central Staff. The interviews were conducted in 2010 and 2011, two years after the peak of the Court of Audit's criticism and the start of the Improvement plans. For the selection of the interviewees and the interview protocol we refer to paragraph 3.3. Second, a content analysis of the answers to the open questions in the organization-wide survey provided additional information. As mentioned in paragraph 3.2, the survey was administered in 2010 and 2011. Thirdly, this chapter contains descriptive statistical results comparing the assessments of military culture, cost awareness, and financial and material management given by the specialists and commanders with the corresponding views of the employees in general; all these data have been collected in the survey.

These three sources of information will be used to explore the management control practices in the Dutch Defence organization and to provide the groundwork to better understand the explanatory results of the quantitative data analyses in the following chapters. The aim of this chapter is to answer the second sub-question:

What are the various internal stakeholders and do these stakeholders differ in their views of in the management of financial and material resources in the Dutch Defence organization?

4.1 Interviews financial specialists and (deputy) commanders

The interviews were conducted to assess the perceived state of affairs and the Improvement plan as requested by the Court of Audit in 2008. The data-matrices in Appendix VI and VII present an overview of the answers of respectively the financial specialists and the (deputy) commanders. Quotations in italics are provided in the following sections to illustrate the general tendencies that could be found in the data.² The account in this chapter is in the past tense, referring to the years in which the interviews were conducted.

¹ Portions of this chapter have been published in: Heeren-Bogers, J. and Soeters, J. (2016). Improving the Management Control Mix for Safety and Security. In: R. Beeres et al. (eds.), *NL ARMS Netherlands Annual Review of Military Studies 2016*. The Hague: Asser Press.

² [C1 t/m C6] = commanders; [FS1 t/m FS17] = financial specialists in line with Appendix V

4.1.1 Problems in financial and material resources management

The respondents were first asked to provide their views about what they experience to be most worrisome issues in financial and material resources management. In the interviews all financial specialists acknowledged deficiencies in the state of financial management in the Dutch Defence organization at that time. Eight of them mentioned that since the inception of the improvement projects serious progress was made, but they also recalled that financial management was not yet in proper order and that there was still room for further upgrading³. The (deputy) commanders seemed a bit more positive. Half of them believed that improvements regarding the financial and material resources management had been implemented⁴. However some (deputy) commanders noted that: “Feeling the breath of the Court of Audit is not nice, but necessary to be honest”[C4], and “attention of management is gradually disappearing (comparing the situation in 2011 with 2008/JHB)”[C5].

It seems that the largest problem in financial management was the late and incorrect recording of liabilities. This was stated by nine financial specialists⁵. As another problem in financial management, late or insufficient insight into expenditures were mentioned by five financial specialists and four (deputy) commanders⁶.

As said before in paragraph 3.3.1, the problems in material management were only discussed in the interviews with the (deputy) commanders. Especially the handling of sensitive material resources attracted their attention. According to three respondents the main problem here was the management of ammunition⁷ whereas the management of weapons was mentioned twice⁸. One (deputy) commander blamed it to “a lack of insight into the location of the materiel”[C1]. Another commander blamed it to “administrative differences”[C2].

The problems in financial and material resources management that were most concerning to the interviewees are summarized in Table 4-1:

Problems in financial and material resources management	Frequencies Financial Specialists	Frequencies Commanders	Frequencies Total	Percentage Total
Late and incorrect recording of liabilities	9	0	9	39%
Late or insufficient insight into expenditures	5	4	9	39%
Management of ammunition	n.a.	3	3	13%
Management of weapons	n.a.	2	2	9%
			23	

Table 4-1 Problems financial and material resources management

- 3 [FS5, FS7, FS10, FS11, FS13, FS14, FS15, FS16]
- 4 [C1, C3, C5]
- 5 [FS2, FS3, FS5, FS7, FS8, FS14, FS15, FS16, FS17]
- 6 [FS2, FS5, FS6, FS14, FS15] and [C1, C2, C4, C6]
- 7 [C2, C4, C6]
- 8 [C4, C6]

4.1.2 Causes of problems in financial and material management

After identifying the main problems, the respondents were asked if they had any ideas about what caused these problems.

Three financial specialists identified a lack of attention to careful management as one of the causes of the problems in financial management⁹. One of them especially added to this that the commanders were not involved enough in financial management [FS4]. Three financial specialists¹⁰ further declared that in the organization not enough attention had been given to problems in financial management: *“Problems should be discussed and that is why we include this in the meetings of the management teams now”* [FS16].

Also three financial specialists thought that the problems in financial management were caused by the fact that the rules and procedures in relation to the authorized budget were not properly followed¹¹. Two (deputy) commanders agreed that this so-called lack of administrative discipline was one of the reasons for the problems regarding financial management¹².

The complex structure of the control-arrangements caused by too many links in the chain (centralisation of payment operations and procurement) was identified by five financial specialists as a cause for problems in financial management¹³. Poor communication between these links aggravates the problems, according to the interviewees. The next example is illustrative: *“When the Defence Materiel Organization has a contract with a vendor to provide, for example, combat boots, then it becomes a liability. After delivery the combat boots arrive at a depot, at a supply unit, and a receipt document, with a test report and a quality report must be drawn up. This depot is another organizational unit than the Defence Materiel Organization. The invoice comes in at the Central Payment Office. And what will it take to pay that invoice? The Defence Materiel Organization has the contract, the depot has the receipt document, with a test report and the invoice is at the Central Payment Office. These must be brought together. There must be a check to see if we can legitimately pay, meet the combat boots that we have ordered our quality standards, etc. This kind of very simple processes is difficult because the activities are on separated locations”* [FS3].

All together four financial specialists and two commanders¹⁴ mentioned that there were too many and too complex procedures. They also argued that the rules were too strict, an example of which is the zero-tolerance policy regarding the management of weapons. This is generally seen as an unrealistic demand, which causes a lack of motivation. In general, interviewees stressed the need for feasible standards and a simplification of the rules and procedures, which was illustrated by an example regarding the use of opiates in the military medical services: *“There is a zero-tolerance policy regarding opiates. One might wonder whether that is*

9 [FS4, FS14, FS15]

10 [FS4, FS7, FS16]

11 [FS1, FS2, FS17]

12 [C3, C5]

13 [FS2, FS3, FS9, FS14, FS15]

14 [FS4, FS6, FS7, FS17] and [C3, C5]

realistic. Wherever people work mistakes are made and certainly in an operating theatre where sometimes a struggle of life and death takes place. Is it really unacceptable in this hectic moments that an ampoule of morphine falls on the ground and breaks? Or should we agree with each other who and how one accounts for this lost ampoule of morphine in retrospect"?[C5].

Six financial specialists and four (deputy) commanders¹⁵ identified the introduction of the new ERP-system in 2008 as a cause for the problems. Hence two other financial specialists¹⁶ explicitly identified this could not be the reason for the problems because "new systems always need time to get used to"[FS10].

A lack of knowledge (referring to the quality of personnel) was mentioned as causing the problems by five financial specialists and two (deputy) commanders¹⁷. A lack of sufficient supervisory staff (referring to the quantity of personnel) due to reductions and restructuring was mentioned twice by the financial specialists and once by a (deputy) commander¹⁸. The respondents' concern about insufficient availability of high-quality administrative staff was illustrated as follows: "The human resources (quantitative and qualitative) may be a potential risk factor, so I pay close attention to that. Since people are critical for success a good working atmosphere is of great importance. We achieve this by informal contact, no hierarchy, a good mix of men and women, military and civilian personnel, young and older employees. My people need to know that their opinion matters"[FS9].

The causes of the problems in financial and material resources management are summarized in Table 4-2:

Causes of the problems in financial and material resources management	Frequencies Financial Specialists	Frequencies Commanders	Frequencies Total	Percentage Total
Implementation of new ERP-system	6	4	10	26%
Lack of knowledge (quality personnel)	5	2	7	18%
Too many too complex procedures	4	2	6	15%
Rules and procedures in relation to the authorized budget were not properly followed (lack of administrative discipline)	3	2	5	13%
Complex structure of the control-arrangements caused by too many links in the chain (centralisation of payment operations and procurement)	5	0	5	13%
Lack of attention	3	0	3	8%
Lack of sufficient (quantity) personnel	2	1	3	8%
			39	

Table 4-2 Causes problems in financial and material resources management

15 [FS5, FS7, FS8, FS9, FS14, FS16] and [C1, C2, C4, C6]

16 [FS10, FS17]

17 [FS2, FS11, FS12, FS13, FS14] and [C5, C6]

18 [FS7, FS14] and [C2]

4.1.3 Improvement by hard controls

By exploring the causes of the problems in financial and material resources management, the respondents already unintentionally mentioned the lack of, or – if present - failing hard and soft controls. In the interviews also the explicit question was raised to what extent more or better working hard controls can help improving financial and/or material resources management. With respect to the hard controls we report the findings according to the various categories of hard controls we distinguished earlier in chapter 2.

Two financial specialists¹⁹ thought that ‘internal auditing’ should be used in a different way to improve financial management. One of them pointed out that the audit reports deserved more attention: *“Audit reports are closely examined [...] The policy now is to wait for the final results but to solve detected errors immediately”*[FS9]. According to the other financial specialist the solution was being sought in the integration of the internal audit capacity into the controller function: *“Another important development is scaling down the internal audit function, which has been a separate organizational unit. I want to integrate the audit capacity into the controller organizations; [...] first and foremost the controller is responsible, on behalf of the commander, to guarantee the reliability. This is not the responsibility of the auditor”*[FS3]. The last phenomenon was advocated by two financial specialists²⁰ as a more pro-active way of control. This was illustrated by the example of a goalkeeper in soccer: *“Putting another goalkeeper behind the first goalkeeper leads to a weak performance of the first goalkeeper because he relies on the safety net behind him. The same applies to controllers and auditors: controllers might not take full responsibility because they rely on the examining of the auditors later”*[FS3]. Two (deputy) commanders and one financial specialist²¹ advocated internal control based on risk analysis: *“The reports of the Defence Audit Department and the Court of Audit are thoroughly analyzed and the internal auditing capacity is concentrated on the areas of improvement identified* [FS16].

Almost half of the seventeen financial specialists²² believed the solution is in less restrictive ‘rules and or procedures’, as explained in the following quote by one of them: *“If you are highly educated and a bookcase full of regulations is poured out upon you, you get a problem, there might be an imbalance. I believe that when the capacity of the individual increases, regulation should be minimized”*[FS8]. Also four (deputy) commanders²³ argued for simplification of rules and procedures as a way to improve financial and material resources management: *“A new regulation regarding material resources management has been prepared. In doing so a choice was made to focus on certain risk areas and further reduce the regulatory burden”*[C6].

Only one of the financial specialists identified the ‘segregation of duties’ as the cause for the problems in financial management: *“the authorizations were issued too broadly”*[FS5]. On the other hand, according to five financial specialists²⁴, the recording of these authorities needed a thorough update. Another improvement in ‘recording’ had been accomplished by updating

19 [FS3, FS9]

20 [FS3, FS6]

21 [C2, C4] and [FS16]

22 [FS2, FS4, FS5, FS8, FS11, FS16, FS17]

23 [C2, C3, C5, C6]

24 [FS6, FS11, FS12, FS15, FS16]

the registers for contracts. This was mentioned by four financial specialists²⁵ and special attention was devoted to an “early warning system” when contracts almost come to an end: “We did not have a register of contracts with an early warning system where the system beeps at the time the contract almost comes to an end. Some people believe that this should be organized by the managers. But if the managers do not get a signal, should they keep track of this by themselves?”[FS1].

Four financial specialists²⁶, two of them from the Air Force, promoted integral ‘risk analysis’ as a way to improve the problems in managing the resources: “Every auditor determines the risks looking through his own straw but it could be that the greatest risks from one straw are even smaller than the smallest risks from another straw. When you assess the risks with an integrated focus you can set priorities. We founded a Quality Risk Board consisting of the top management of the Air Force and the commanders of all Air Force organizational units. Based on risk analysis they decide what needs to be taken care of in the first place”[FS7].

All these comments related to the need of feasible standards and a realistic view of being “in control”, as one (deputy) commander illustrated: “We need to ask ourselves what it means exactly to be in control. Here a realistic view needs to be taken. As the deputy commander I feel in control when the Army has sufficient people and materiel to complete the tasks”[C1].

Here, various problematic aspects of the traditional bureaucracy can be seen: segregation of duties leading to administrative complexity combined with a density of rules as well as a lack of oversight among the specialists and the commanders. “Every auditor is looking through his own straw”, is a quote of a high-ranking financial specialist signifying the ‘silo’ or ‘stovepipe’-character of the organization’s various units. As a consequence, responsibilities are unclear, payments are late, budgets are not up-to-date, and those who are formally responsible tend to feel indifferent, as a number of respondents argue.

If and how hard controls can help improve financial and material resources management is summarized in Table 4-3:

Improvement of financial and material resources management by hard controls	Frequencies Financial Specialists	Frequencies Commanders	Frequencies Total	Percentage Total
Less restrictive / simplification rules and or procedures	7	4	11	41%
Up to date recording of authorities	5	0	5	19%
Updating the registers for contracts	4	0	4	15%
Risk analysis	4	0	4	15%
Different use of internal auditing	2	0	2	7%
Stricter segregation of duties	1	0	1	4%
			27	

Table 4-3 Improvement financial and material resources management by hard controls

²⁵ [FS11, FS12, FS13, FS15]

²⁶ [FS7, FS8, FS16, FS17]

4.1.4 Improvement by soft controls

After examining if and how hard controls can improve the problems in financial and material resources management, respondents were asked how they think soft controls can be used. We analyze the findings according to the seven types of soft controls we discussed in chapter 2.

Four financial specialists²⁷ mentioned ‘clarity’ of the hard controls, - meaning that the standards are clear, comprehensive and understandable - as a precondition for administrative discipline: *“Do what we have already committed ourselves to ... but maybe things were unclear”*[FS15]. *“We explained why things need to be done in a certain way”*[FS14]. And another respondent: *“Clarity can be improved, we need to break improvement plans down into bite-sized segments”*[FS16]. The (deputy) commanders did not mention ‘clarity’ as a way to improve financial and material resources management.

Almost half of the financial specialists²⁸ identified ‘congruency’, which concerns the alignment between the expectations in the organization and concrete management behaviour, as a way of improving financial management. Especially (deputy) commanders should have attention for careful financial management. However, one can question if they are intrinsically motivated to do so: *“In the eyes of the commander financial management is a factor of hygiene. If it is in order, there is really no advantage, because that is normal. But if it’s not on order, it is very inconvenient”*[FS6] ‘Congruency’ was also mentioned by four (deputy) commanders²⁹ as a way of improving financial and material resources management: *“Involvement of the line managers is essential. Careful management of resources – like capabilities to ensure safety - must become a mindset of all commanders from the top to the bottom of our organization. You can never achieve this through thick manuals and stacks with procedures”*[C1].

Seven of the financial specialists³⁰ mentioned ‘discussability’, which relates to the opportunities employees see to raise and discuss current practices in the organization, as an important factor for improving financial management. By this, most respondents meant that top management should be addressing middle managers in case of careless management. In this way discussability was closely related to congruency. Indeed three (deputy) commanders³¹ underlined the importance of discussability: *“It was never the intention to publicly shame people, but when one of the sub commanders scores relatively poor it is a problem for us all. We must therefore establish the causes together and search for solutions”*[C5]. One financial specialist quoted that ‘discussability’ can be used to learn from mistakes: *“I feel the need to explain what the impact of careless management is and find solutions together so we can improve in a structural way”*[FS13].

According to one of the respondents, ‘transparency’ - referring to the knowledge of employees what the consequences of their actions and behaviour are - provided a possibility to improve

27 [FS2, FS14, FS15, FS16]

28 [FS2, FS4, FS5, FS7, FS11, FS14, FS15, FS17]

29 [C1, C2, C5, C6]

30 [FS7, FS9, FS11, FS12, FS13, FS14, FS17]

31 [C2, C4, C5]

financial management: *“I am sure you should dare to violate rules if necessary. Then you score errors in terms of legitimacy, but the system has worked, because the commander made an informed decision [...] Only what matters is that this choice must be transparent and it needs to be made at the appropriate level”* [FS6]. ‘Transparency’ by disclosure of the audit-reports was mentioned by one (deputy) commander [C5].

‘Sanctionability’, which concerns the degree to which inappropriate employee behaviour will be punished and appropriate behaviour will be rewarded, was mentioned by several respondents in different ways. One financial specialist and one (deputy) commander (not from the same organisation part)³² suggested to place organization parts under financial supervision: *“People should feel the pain when it is not good, for example by cutting the budget of the commanders who made a mess out of it”* [C2]. Two financial specialists and also the commander from the Royal Netherlands Marechaussee³³, mentioned the use of green, yellow and red cards as a way to establish a symbolic form of ‘sanctionability’: *“This does not mean that a commander of a district will be fired if he receives a red card”* [FS11]. *“If you receive a green card than you are given more freedom of action and less inspections. On the other hand, if you receive a red card you get more attention and you need more reporting”* [FS12].

The soft controls ‘feasibility’, which refers to the extent an organization creates conditions enabling employees to comply with the expectations, and ‘supportability’, which refers to the employee’s involvement in and commitment to the normative expectations, were only mentioned by one financial specialist each³⁴.

At last, the (deputy) commander of the Army underlined the need for soft controls according to the analogy of a church-organ versus a symphonic orchestra: *“For example, a frigate in the Navy can be seen as a church-organ: only one instrument is fully responsible for the music. In that case the hard controls can be build up from the beginning. On the other hand, the Army operates more like a symphonic orchestra. Because of the ever-changing compositions you can never come to be in control using fixed procedures and rules. Without soft controls we will never achieve harmonised music”* [C1].

If and how soft controls can help improve financial and material resources management is summarized in Table 4-4:

■
32 [FS17] and [C2]

33 [FS11, FS12] and [C4]

34 Feasibility [FS9], Supportability [FS10]

Improvement of financial and material resources management by soft controls	Frequencies Financial Specialists	Frequencies Commanders	Frequencies Total	Percentage Total
Congruency	8	4	12	34%
Discussability	7	3	10	29%
Clarity of the hard controls (standards are clear, comprehensive and understandable)	4	0	4	11%
Sactionability (green, yellow and red cards)	2	1	3	9%
Transparency	1	1	2	6%
Sanctionability (financial supervision)	1	1	2	6%
Feasibility	1	0	1	3%
Supportability	1	0	1	3%
			35	

Table 4-4 Improvement financial and material resources management by soft controls

4.1.5 Cost awareness

Following the conceptual model displayed in chapter 2, the interviews also focused on the concept of cost awareness in the Dutch Defence organization. The question was asked to what extent cost awareness of employees will be beneficial to the improvement of financial and/or material resources management of the Dutch Defence organization.

Seven financial specialists³⁵ believed that cost awareness of commanders in the Dutch Defence organization had been improving because of recent cutbacks: *“The average commander today [2010/JHB] is more aware that money is a scarce resource. The idea that costs are not so important was predominant in the Cold War. Year after year there were cut backs but we still could do the same. At this point it does not work that way anymore. When facing cut backs we really need to eliminate certain activities. When a military exercise is being cancelled due to insufficient financial means, then it becomes crystal clear to commanders that money is scarce”* [FS6]. Strikingly, this point was not mentioned by any of the six (deputy) commanders.

According to more than half (nine) of the financial specialists³⁶ the state of cost awareness in the Dutch Defence organization was relatively low: *“I believe that the cost awareness of the people who are initiating purchases is not sufficient. One could say that is not my problem: “I am not responsible for the money, I am just the one who formulates what the organization needs, or I am just a planner or the one who acquires”* [FS1].

Four of the financial specialists believed this was caused by a lack of insight into the costs and almost all, five out of six, (deputy) commanders³⁷ also believed that insight into costs at decentralized levels of the organization is a precondition for cost awareness and that this insight was lacking. One of the (deputy) commanders used the imminent depletion of the

35 [FS3, FS6, FS11, FS12, FS13, FS14, FS17]

36 [FS1, FS2, FS4, FS5, FS7, FS11, FS12, FS15, FS16]

37 [FS2, FS5, FS14, FS16] and [C1, C2, C3, C5, C6]

budget of transportation as an example: *“In a management team meeting all sub-commanders were told to limit the expenditures. However no one had insight into the extent to which his unit was responsible for this depletion so nobody felt the need to be more economical. Only when a stop on hiring cars was proclaimed, this could be brought to an end. It works the other way around as well: if you do not use the whole budget you should be allowed to keep it. This works as an incentive”*[C5].

Five financial specialists³⁸ blamed this lack of cost insight on a focus on expenditures instead of costs, which can be illustrated by an example about the procurement of ammunition: *“I need a particular package of ammunition for the next year and I placed that order at the Defence Materiel Organization. They wanted to order a much larger package because of economies of scale but I did not want that because my budget is only sufficient for the ammunition for next year. So therefore we run the risk of inefficient purchasing. Because of that the expenditure budgets are transferred to the Defence Materiel Organization. However, this leads to the situation that the operational organization parts are not confronted with the expenditures they cause. So that is the other side of the coin. And that is why we are now thinking of a kind of combination of budgets in the form of a cost budget for me as a user, so I can make decisions on my own for ammunition or fuel for example. And the organization part that is going to purchase the order holds the expenditure budget”*[FS5].

Two financial specialists³⁹ believed that cost awareness may also have an adverse effect on the quality of financial management: *“The man who figured out that the laptop in the shop around the corner is €300 cheaper than a similar laptop retrieved from the framework contract of the defence organization, and decides to buy the laptop in the shop around the corner from a cost awareness point of view, receives a note of careless financial management. Or even worse a warning that he behaved illegitimately because a) he bought the laptop himself and he did not comply to the rule that everything should be bought by the purchase department and b) the laptop was not retrieved from the framework contract”*[FS7].

Six financial specialists⁴⁰ believed that there is no relation between cost awareness and the quality of financial management. And three financial specialists⁴¹ did not know what the relation between cost awareness and financial management would be.

To what extent cost awareness will be beneficial to financial and material resources management is summarized in Table 4-5:

■
38 [FS5, FS7, FS12, FS15, FS16]

39 [FS7, FS15]

40 [FS2, FS4, FS11, FS12, FS16]

41 [FS8, FS9, FS10]

Relation between cost awareness and financial and material resources management	Frequencies Financial Specialists	Frequencies Commanders	Frequencies Total	Percentage Total
State of cost awareness is relatively low	9	0	9	22%
Lack of insight into the costs (and therefore lack of cost awareness)	4	5	9	22%
Cost awareness of commanders had been improving because of recent cutbacks	7	0	7	17%
No relation between cost awareness and the quality of financial management	6	0	6	15%
Focus on expenditures instead of costs	5	0	5	12%
Relation between cost awareness and the quality of financial management is unknown	3	0	3	7%
Cost awareness may have an adverse effect on the quality of financial management	2	0	2	5%
			41	

Table 4-5 Relation between cost awareness and financial and material resources management

4.1.6 Organizational culture

A final element of the interviews referred to the more general context of financial and material resources management in the Dutch Defence organization. In the conceptual model as displayed in chapter 2, we framed this general context as the organizational culture in and of the military.

One of the salient issues that emerged in this connection was the frequent reference to the so-called ‘can-do’ mentality in the military. This relates to a mind-set – a manifestation of military organizational culture - that stresses the willingness to take on the challenges that are set to do, without much hesitation, doubt or discussion (Soeters, 2017). This predominantly refers to the operational, ‘hot’ side of the organization. All six (deputy) commanders stressed this point in varying words⁴², as did 11 out of the 17 financial specialists⁴³. Clearly, the on-going operations in Afghanistan during the time the interviews were conducted (2010, 2011), echo in these views. The following two quotes illustrate how this mind-set suppresses considerations with respect to careful management control procedures. *“The culture is very results-oriented and there is a can-do mentality. During operations choices have to be made under strong pressure. The efficiency is of secondary importance” [C2]. “Sometimes implementing staff are instructed by the commander to acquire the equipment; “because we need them now and I have nothing to do with the procedures” [FS2].*

Both quotes express the concern for employees’ lives and the willingness to keep on going: they express a strong urge to continue the primary tasks. Rebuttals are not likely to emerge

⁴² Five commanders express that the military culture is results-oriented, four describe the culture as military professional, two speak about the ‘can-do-mentality in the military, two speak about the heavy focus on operations, and two other commanders believe that efficiency is of secondary importance.

⁴³ Six financial specialists speak about the ‘can-do’ mentality, eight financial specialists mention that the military culture is characterized as result-oriented.

in these conditions; no one wants to see military women or men being wounded or killed because of resources that are too few in numbers or too low in quality.

Another aspect refers to the following. The culture of the Dutch Defence organization cannot be characterized as an atmosphere in which people are held accountable for their actions and the consequences thereof: *“There is not really a culture of blaming and addressing. We cover each other’s backs”*[FS2]. Three respondents⁴⁴ think this is due to the specific military setting: *“a closed personnel system”* [C1], *“no financial mindset because we are a governmental organization”* [C5] and *“military are trained to achieve certain goals and also the weakest member must go along with the team. They are trained in dragging each other through, and this mentality continues regarding management topics. You do not address deviant behaviour but you try to keep everybody, also the weakest link, on the same track”*[FS11].

At last, two financial specialists⁴⁵ mention a lack of trust between management and operations: *“A lack of trust at managerial level is compensated by a surplus of rules, informational services and monthly reports”*[FS3].

A summary of the specific features of the organizational culture in and of the military is provided in Table 4-6:

Organizational culture in and of the military	Frequencies Financial Specialists	Frequencies Commanders	Frequencies Total	Percentage Total
Can-do mentality	11	6	17	74%
Not a culture in which people are held accountable for their actions and the consequences thereof	2	2	4	17%
Lack of trust between management and operations	2	0	2	9%
			23	

Table 4-6 Organizational culture in and of the military

4.2 Analysis of open questions in survey

Before performing the quantitative analyses (chapter 5 and 6) we want to explore how the respondents of the survey feel about the hard and soft controls. Therefore, in addition to the interviews with the financial specialists and the (deputy) commanders, a content analysis of the answers to the open questions in the survey was performed. In line with (Bryman, 2016: 573), this content-analysis is executed by coding the answers of the respondents to the questions *“Which of the hard controls would you like to be improved and how do you think this*

44 [FS11] and [C1, C5]

45 [FS3, FS9]

can be realized”? and “Which of the *soft controls* would you like to be improved and how do you think this can be realized?”

4.2.1 Hard controls

Of 377 respondents in total, 182 respondents (48%) have provided a useful response to the question “Which of the hard controls would you like to be improved and how do you think this can be realized”?⁴⁶ Incidentally, per respondent multiple control measures were mentioned. The reactions of these 182 respondents were on the one hand categorized into the five hard controls explained in the theoretical framework provided in chapter 2. On the other hand, six other elements, i.e. budget management, education/training, sanctionability, awareness/responsibility, capacity and congruency came forward in the responses, as can be seen in Table 4-7. Thus, some of these responses referred to soft controls even though respondents were specifically asked what hard controls they would like to be improved. This may be an indication that respondents did not have a clear understanding of the differences between hard and soft controls. It may also be an indication of the need for the right mix of both categories of control.

Hard control / other factor	Frequency financial management	Frequency material resources management	Frequency Total	Percentage Total
HC Rules and procedures	25	22	47	22%
HC Recording	21	17	38	18%
HC Internal auditing	15	16	31	14%
Sanctionability (soft control)	6	15	21	10%
Education/training	8	11	19	9%
Budgetmanagement	14	0	14	7%
HC Risk assessment	9	4	13	6%
Awareness/responsibility	5	4	9	4%
HC Separation of duties	5	3	8	4%
Capacity	2	6	8	4%
Congruency (soft control)	1	5	6	3%
			214	

Table 4-7 Frequency of responses mentioning hard controls

Interestingly, the employees responding to the questionnaire in general did not believe that intensifying hard controls, such as tighter rules and procedures and strict budget

⁴⁶ In the subcategories of the 207 respondents with responsibilities in financial management, 98 respondents (47%) and of the 170 respondents with responsibilities in material resources management, 84 respondents (49%) provided a useful response.

management, will lead to better management control practices; this is illustrated in the following response: *“Hard controls can be counter-productive and may raise aversion [...] this regime would not work at home either, at least not in the long run.”* They believe such policies would create indifference, aversion and possibly even cynicism among the employees. That would be particularly worrisome because a number of respondents did not see that financial and material resources management was part of their task at all: *“My job is to train a brigade, nothing else”*. Those latter respondents are few in numbers, though.

The majority of the respondents, however, believed that every employee is responsible for careful resources management and this can only be accomplished by using specific hard controls in a sophisticated way. The hard controls ‘rules and procedures’, ‘recording’ (in IT-systems) and ‘internal auditing’ were mentioned most often. As said, this does not mean that respondents want these hard controls to be used more frequently and/or more intensively. Instead, the respondents called for a different view on implementing hard controls implying more flexibility in the obligation to adhere to strict budgetary rules and a decrease, clarification and/or simplification of rules and procedures: *“Avoid unnecessary duplications”*. *“There is a need for more clarification and harmonization of rules and procedures throughout the whole organization.”*

The responses regarding ‘recording’ all pointed towards a wider use of the IT-systems. Those responses suggested that more people need access to the IT-systems: *“The financial system must be removed from anonymity: every (budget)line in the system has an owner so that owner needs read access.”* Furthermore, managing material resources in particular would benefit considerably from a smarter use of the existing IT-systems: *“tracking and tracing, recording and control by using barcodes.”*

With regard to ‘internal auditing’ respondents wanted this hard control to be used with the purpose to learn instead of being judged: *“Internal auditing is a snapshot and too much focused on finding errors [...], which is the main criterion the units are assessed on. Internal auditing should be more directed at giving advice and assistance to bring the material resources management of a unit to a higher level.”*

We already mentioned that next to the previously identified five categories of hard controls six other elements came forward in the many responses. Interestingly, a number of them referred to the soft controls -sanctionability, congruency, capacity which is related to the soft control feasibility and awareness which is related to the soft control clarity- even though respondents were specifically asked what hard controls they would like to be improved. This may be an indication that respondents did not have a clear understanding of the differences between hard and soft controls. However, it may also be an indication of the need for the right mix of both categories of control. Apparently, according to the respondents, there is no such thing as improving hard controls without paying attention to soft controls.

Respondents with responsibilities in financial management mentioned budget management as a way to improve the state of affairs. They indicated to see value in more decentralization, i.e. giving more responsibilities to lower levels in the organization, including junior

commanders and rank-and-file personnel at the company– and platoon-level: *“this helps to create cost awareness at a lower level in the organization.”* Additionally, the need for extra training and education emerged from the responses, which can be best categorized as the soft control ‘feasibility’: *“there is a need for mandatory courses for key employees with responsibilities in financial or material resources management.”* Another soft control – ‘sanctionability’ – was mentioned as well, sometimes within the connotation of punishment or rewarding but most of the time with the idea of calling each other to account for their conduct. Another element referred to awareness and taking responsibility in careful resources management. This seemed to be especially important in material resources management: *“being aware of the usefulness and importance of materiel, (ask yourself...) do you need it in the performance of your task?”* A next element, capacity or actually the lack of capacity, can also be categorized as the soft control ‘feasibility’: *“provide personal capacity to regain insight, (then...) checks and corrections will follow automatically, like before.”* Finally, the last element can be categorized as another soft control, i.e. ‘congruency’. Respondents attached great importance to role modelling of particularly commanders: *“compliance to existing measures regarding careful resources management, not so much by financial specialists but by commanders.”*

4.2.2 Soft controls

Of 377 respondents in total, 161 respondents (43%) have provided a useful response to the question “Which of the soft controls would you like to be improved and how do you think this can be realized”?⁴⁷ Incidentally, per respondent multiple control measures were mentioned. The reactions of these 161 respondents can be categorized according to the seven soft controls of the Ethical Virtues Model. On the other hand, two other elements came forward, i.e. (cost) awareness and sense of responsibility, as can be seen in Table 4-8.

Following the various elements of soft controls that were distinguished in chapter 2, we first see the respondents’ need for more ‘clarity’ of rules and procedures – among other things by means of better instruction –, which is in accordance with what we just saw: *“More uniformity, less fragmentation and simpler procedures and rules [...] leave some margin to manoeuvre within the rules.”*

Most frequently mentioned (see Table 4-8), particularly with respect to material resources management, was the soft control ‘congruency’. This refers to proper leadership entailing the need for commanders to set an example: *“Managers should always set a good example, be compliant with the rules and make adjustments where it is necessary.”* It is not surprising to see this emphasis in the respondents’ reactions because the military organization is built around the idea of hierarchy.

⁴⁷ In the subcategories of the 207 respondents having responsibilities in financial management, 87 respondents (42%) and of the 170 respondents with responsibilities in material resources management, 74 respondents (44%) provided a useful response.

Soft control / other factor		Frequency financial management	Frequency material resources management	Frequency Total	Percentage Total
SC Congruency		13	20	33	15%
SC Discussability		14	10	24	11%
SC Feasibility	Education and training	10	13	23	11%
(Cost)awareness		14	6	20	9%
Responsibility		11	7	18	8%
SC Clarity		9	7	16	7%
SC Feasibility	Feasibility in general	6	10	16	7%
SC Sanctionability	Rewarding	9	7	16	7%
SC Sanctionability	Punishing	8	4	12	6%
SC Sanctionability	Addressing	7	4	11	5%
SC Feasibility	IT	6	4	10	5%
SC Sanctionability	Sanctionability in general	1	7	8	4%
SC Supportability		6	2	8	4%
SC Transparency		2	0	2	1%
				217	

Table 4-8 Frequency of responses mentioning soft controls

The soft control ‘feasibility’ has been mentioned frequently as well, often in very specific ways (see Table 4-8). In addition to the concept that was identified in Kaptein’s (2008) previous research, the respondents discerned general feasibility next to feasibility in training/education and feasibility in IT-facilities. These facilities could be improved considerably according to the answers of many respondents: *“More education or training of people on the shop floor (no weeks but days) about careful material resources management is needed.”* *“[...] It is hard to explain to employees that they need to manage the material resources more carefully whereas the IT is taking backward steps.”*

The soft controls ‘supportability’ and ‘transparency’ have not been referred to frequently. ‘Discussability’, however, was. The importance of clear communication as well as the possibility to discuss why certain rules and guidelines in some circumstances cannot be followed have been mentioned a number of times: *“Offer more opportunities for managers (platoon and company commanders) to explain why a regulation cannot be adhered to”.*

Based on the answers of the respondents, the last soft control ‘sanctionability’ has been differentiated into four categories: ‘sanctionability’ in general, addressing employees as well as rewarding and punishing. ‘Addressing’ refers to respondents who emphasize the need to make people fully responsible for management control issues and treating them as such: *“address people directly in regular performance evaluations if reports indicate failing practices.”* This comes along with the aspect of rewarding in ‘sanctionability’, the need to *“back-up*

those who take risks and reward those who suggest improvements” and the aspect of punishing in ‘sanctionability’ “to punish those who fail in this respect.” The respondents’ frequent references to aspects of ‘sanctionability’ align with the disciplinary character of organizational cultures in the military.

As mentioned before, next to the soft controls of the Ethical Virtues Model, two other elements came forward i.e. ‘awareness’ and ‘responsibility’. Comparable to what financial specialists suggested in the interviews, (cost) awareness has been mentioned several times as an item that needs attention: “*personnel needs to become aware that everything costs money. Even after the many budgets cuts we have been facing in the last couple of years, it is still possible to economize on many things.*” The next step after awareness is being responsible, but this can only be accomplished when people are given this responsibility. Like said before: “*by decentralising budget responsibility, people will have better insight and a higher sense of responsibility.*”

Taking everything together, one can see that (the various forms of) ‘feasibility’, ‘sanctionability’, ‘congruency’ and ‘discussability’ are mentioned most often as soft controls to improve financial and material resources management. ‘Congruency’, i.e. leadership setting proper examples, is more important in material resources management, whereas (cost)awareness is more important in regards of financial management.

4.3 Preliminary statistics

To conclude this chapter, preliminary descriptive statistical results will be presented to determine whether there are differences in the responses between the various respondents from the survey. As may be recalled, those were commanders, financial specialists, logistic specialists, employees with responsibilities in financial management and employees with responsibilities in material resources management. Several analyses of variance (abbreviated ANOVA, Field, 2009: 353) and an independent samples t-test (Field, 2009: 325) have been conducted⁴⁸, as can be seen in Table 4-9.

The comparison of the assessment of the financial management was only possible between the commanders, the financial specialists and the employees with responsibilities in financial management. There was a significant effect of the type of respondent on the assessment of financial management at the $p < .05$ level between the three groups of respondents [$F(2, 324) = 6.98, p = .001$]. Post hoc comparisons using the Hochberg’s GT2 procedure⁴⁹ indicated that the mean score of the assessment of the financial management among the commanders ($M = 4.91, SD = .55$) was significantly higher than the assessment of the financial management

48 Since not every survey question was addressed to all respondents as explained in Table 3-4 (chapter 3), not all groups of respondents were taken into account in every analysis of variance.

49 According to Field (2009:375) Hochberg’s GT2 post hoc procedure is preferred when the sample sizes are very different. As mentioned in Chapter 3, this is the case in this study since the net responses are 262 regarding employees in financial management, 213 regarding employees in material resources management, 36 regarding logistic specialists, 44 regarding financial specialists and 45 regarding commanders.

among the employees with responsibilities in financial management ($M = 4.51, SD = .78$). The mean score of the assessment of the financial management among the financial specialists ($M = 4.78, SD = .68$) was not significantly lower than the assessment of the commanders.

			Commanders		Financial specialists		Logistic specialists		Employees financial management		Employees material resources management	
	F	p	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Financial management (1-6)	(2, 324) = 6.98	.001	4.91	.55	4.78	.68	n.a.		4.51	.78	n.a.	
Material resources management (1-6)	(2, 269) = .34	.711	4.94	.62	n.a.		4.94	.87	n.a.		4.85	.79
Military culture (1-13)	(4, 551) = 9.68	.000	7.25	3.48	3.45	2.76	6.58	3.05	4.80	3.37	5.46	3.27
Cost awareness (1-6)	(4, 593) = 7.63	.000	4.28	.77	4.39	.69	3.66	1.15	3.76	.96	3.73	.96
Hard controls (0-6)	(3, 547) = 20.37	.000	n.a.		5.06	.60	4.49	1.07	3.51	1.49	3.65	1.34
Soft controls_excl clarity ⁵⁰ (1-6)	(1,463) = 1.19	.277	n.a.		n.a.		n.a.		4.39	.58	4.38	.62

Table 4-9 Analyses of variance between respondents

The comparison of the assessment of the material resources management was only possible between the commanders, the logistic specialists and the employees with responsibilities in material management. There was no significant effect of the type of respondent on the assessment of material resources management at the $p < .05$ level between the three groups of respondents [$F(2, 269) = .34, p = .711$]. The mean score of the assessment of the material resources management for the commanders ($M = 4.94, SD = .62$), the logistic specialist ($M = 4.94, SD = .87$) and the employees with responsibilities in material resources management ($M = 4.85, SD = .79$) did not deviate significantly from each other.

There was a significant effect of the type of respondent on military culture at the $p < .05$ level between the five groups of respondents [$F(4, 551) = 9.68, p = .000$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the mean score on military culture for the commanders ($M = 7.25, SD = 3.48$) and for the logistic specialists ($M = 6.58, SD = 3.05$) were significantly higher than the score on military culture among the financial specialists

⁵⁰ The construct of soft controls originally constitutes of the meanscore of the seven soft controls. Since the soft control Clarity specifically asks about the clarity regarding financial management or material resources management we composed two different constructs of soft controls. Because we now want to determine whether the employees with responsibilities in financial management or the employees with responsibilities in material resources management assess the soft controls differently, we composed a new construct of soft controls excluding the soft control clarity.

($M = 3.45$, $SD = 2.76$), the employees with responsibilities in financial management ($M = 4.80$, $SD = 3.37$) and the employees with responsibilities in material resources management ($M = 5.46$, $SD = 3.27$). This obviously indicates that the first two categories of respondents count relatively more military instead of civilian personnel, and among the military men and women most likely also the ones with more operational experience.

There was a significant effect of the type of respondent on cost awareness at the $p < .05$ level between the five groups of respondents [$F(4, 593) = 7.63$, $p = .000$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the mean score of cost awareness for the commanders ($M = 4.28$, $SD = .77$) and the financial specialists ($M = 4.39$, $SD = .69$) were significantly higher than the cost awareness of the logistic specialists ($M = 3.66$, $SD = 1.15$), the employees with responsibilities in financial management ($M = 3.76$, $SD = .96$) and the employees with responsibilities in material resources management ($M = 3.73$, $SD = .96$).

The comparison of the assessment of the hard controls was only possible between the financial specialists, the logistic specialists and the employees with responsibilities in financial and material resources management. There was a significant effect of the type of respondent on their assessment of the hard controls at the $p < .05$ level between these four groups of respondents [$F(3, 547) = 20.37$, $p = .000$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the mean score of hard controls for the financial specialists ($M = 5.06$, $SD = .60$) and the logistic specialists ($M = 4.49$, $SD = 1.07$) were significantly higher than the assessment of the hard controls of the employees with responsibilities in financial management ($M = 3.51$, $SD = 1.49$) and the employees with responsibilities in material resources management ($M = 3.65$, $SD = 1.34$).

Only employees with responsibilities in financial and material resources management were asked to assess the soft controls in their units. Since these are only two groups with different participants an independent samples t-test was performed. On average, employees with responsibilities in financial management assess the soft controls ($M = 4.39$, $SE = .04$) not significantly different than the employees with responsibilities in material resources management ($M = 4.38$, $SE = .04$), $t(463) = .19$, $p > .05$.

4.4 Subconclusion exploring the management control practices in the Dutch Defence organization

After exploring the management control practices in the Dutch Defence organization by analysing the interviews with 6 (deputy) commanders and 17 financial specialists and investigating the answers to the open questions in the survey, it seems that management control is a matter of both hard formal instruments and soft informal dynamics. There is no way to improve financial and material resources management without fixing the mixing of the two.

Hard controls, especially ‘rules and procedures’, ‘internal auditing’ and ‘recording’ were often mentioned by both the interviewees and the respondents in the survey as instruments to improve financial and material resources management, but they also relate these instruments to elements of soft controls. This result can be explained when one understands that the impact of hard controls on financial and material resources management is mediated by soft controls. In modern societies and organizations, formal rules, regulations and procedures are indispensable, but the way they are applied and followed by managers and employees determines how and to what extent these formal instruments are effective in the organization’s everyday life.

From our data we may conclude that improvement in hard controls predominantly can be found in modernizing the control procedures in such a way that they align with new ideas concerning the so-called ‘enabling’ bureaucracy (Adler and Borys, 1996: 66). Applying these insights to the context of this study our data from the different sources point at the need for a rearrangement and simplification of the various elements of the hard controls-cycles and having more and also lower-ranking personnel involved in the control process. This aligns with the idea of creating more simple procedures and more complex jobs with more responsibilities (De Sitter, Den Hertog and Dankbaar, 1997: 498). The latter is even more relevant because many more of today’s employees are better educated than in the past and can, hence, handle more complexities in their direct tasks (Adler and Borys, 1996). This applies to the specialists in management control as well as to the commanders. Most likely the newly implemented IT-systems, especially ERP (Enterprise Resource Planning) software can play a useful role in this as well, as many interviewees believe (also see Maas et al., 2014).

At the same time improvement in soft controls relates to the need of making the people in the organization more aware of the fact that everything needs to be paid for, that devices or gear should not disappear, that time is precious and that nothing is for free. Frequently mentioned, as well as in the interviews as in the answers to the open questions were the soft controls ‘congruency’ and ‘discussability’. Fortunately, attempts to guide the mind-set towards a more adequate management control direction can profit from essential features of militaries’ organizational cultures, such as leadership and functional discipline (e.g., Soeters, 2017). Schaubroeck, Hannah, Avolio, Kozlowski, Lord, Treviño, Dimotakis and Peng (2012: 1070) have convincingly demonstrated – with statistical data collected among U.S. soldiers deployed to Iraq – how ethical leadership not only impacts soldiers behaviour within the same hierarchical level, but also across levels, through trickle-down and bypassing effects. The study showed that in the military higher level leadership can reinforce lower level-leadership. Bearing this in mind, it is promising that -according to the analysis of variance (ANOVA) test- the commanders indicated to have a relative high degree of cost awareness, which is in line with the highly needed emphasis on ameliorating the financial situation of the Dutch military, particularly at the time the data collection was conducted.

There may be other sides to this, though: another feature of the military culture that frequently came forward in the interviews was the so-called ‘can-do’, or result-, or mission oriented

mentality. A ‘can-do’ mentality implies acting without much ado. In situations of immediate threat and crisis, the value of this mentality or attitude can simply not be overestimated. As mentioned twice in the interviews “*If it cannot be done the way it should, then it should be done the way it can*”[FS6 and FS7]. That is why the military can go on where everybody else stops, even in the hardest circumstances. However, if this implies jumping to solutions and conclusions without getting to analysing the root of the problem first, as two of the interviewees⁵¹ argued, a ‘can-do’ mentality may produce suboptimal results, both in peacetime and operational situations. Furthermore, no matter how important a ‘can-do’ mentality in matters of life and death may be, this mind-set becomes less acceptable if the threats would be exaggerated by commanders who have monopolized decision-making. Ceaseless referring to effectiveness may disarm those who want to know what effectiveness (or a results-orientation) in fact is supposed to be. In order to prevent effectiveness in operations from becoming “fighting for the sake of fighting”⁵², a ‘can-do’ mentality should not become too pervasive. Nor should it lead to a weak cost awareness - which according to more than half of the 17 financial specialists was apparent in the organization at the time of data collection - and suppress considerations of careful management control. It should always be kept in mind that failing management control in turn may have costly and dear operational consequences.

Still there is a small number of respondents who indicate that it is simply not their job to pay attention to such issues and that effectiveness in battle – without much pondering over what effectiveness is - is more important than anything else. This is a remarkable point of view. All employees have taken an oath, which is connected to a code of conduct that makes perfectly clear to all employees what is expected from them when it comes to careful financial and material resources management.⁵³ Apparently those particular respondents do not see a direct relation between the code of conduct and careful financial and material resources management. Opinions that indicate indifference towards the organization’s resources seem like a relic of old times when indeed the military had almost unlimited resources available, and when military performance usually was not scrutinized, let alone by people from outside the own organization.

In order to be able to answer the sub-question central in this chapter, we performed a number of analyses of variance and a t-test to determine if the views of the various stakeholders differ in their opinion about the management of financial and material resources in the Dutch Defence organization. It appears that the commanders assess the financial management significantly higher than other stakeholders do. Regarding material resources management the assessment of the various stakeholders did not deviate significantly from each other. The commanders and the logistic specialists proved to have a significant higher score on military

51 [FS11, FS12]

52 Brænder (2016: 3) has shown that soldiers can become “adrenalin junkies” because their tolerance toward excitement is “pushed upward” by being exposed to danger. This explanation is tested, and finds partial support, using panel data with soldiers from two Danish companies, serving in Helmand, Afghanistan in 2011.

53 Ministry of Defence 2007, point 3: “I do not impair the interest of the Dutch Defence organization and I set an example in attitude, appearance and behaviour. I deploy the resources entrusted to me in a responsible way and use them carefully and legitimately.” [translation JHB]

culture. As mentioned earlier, the cost awareness of the commanders and also the financial specialists proved to be significantly higher than the other respondents. Regarding the hard controls, the responses of the financial and logistic specialists were significantly higher than those of the employees with responsibilities in financial or material resources management. There were no deviating results in the assessment of the soft controls.

Taking everything together, the results of the interviews as well as the analysis of the open questions in the survey show that improvement of financial and material resources management is a matter of both hard and soft controls.

5

5 Hard and /or soft controls?

Exploring the management control practices in the Dutch Defence organization on the basis of qualitative sources of data and preliminary statistical results, leads to the conclusion that improvement of financial and material resources management is a matter of both hard and soft controls. Also Chapter 2 suggested that both forms of control are important in establishing careful employee behaviour. The question is how the two forms of control affect employee behaviour, and to what extent they are interrelated.

Therefore, this chapter aims to determine the relative importance of hard versus soft controls on the careful use of financial and material resources. While the current focus of the public administration field is on effectiveness, the public also rightly wants and expects efficiency. This should not be neglected and therefore this study contributes to the efficiency discussion by investigating ways to support the careful use of resources. In this chapter¹ the following sub-question will be answered by performing hierarchical multiple regression analysis on the survey data:

What kind of controls, hard and/or soft, are more effective in managing the financial and material resources of the Dutch Defence organization?

5.1 Hypotheses

The typical culture of an organization can affect the extent to which managers and employees deal carefully with the financial and material resources of their organization. The culture of an organization consists of the prevailing beliefs about what is good and bad (Schein, 1985). The specific culture can have a positive or negative impact on financial and material resources management. The influence may be positive if the managers and employees of an organization have a right and strong common understanding of what is careful and what is careless management of resources. If this strong shared understanding is missing or the common understanding is not focused on careful management this has a negative impact on the actual management of financial and material resources.

Defence organizations are a prime example of public sector organizations. They serve a valued public cause, whose “life-or-death” importance - ideologically and in the reality of, for instance, the Afghan fields - prevails over money and material issues. In this they compare with health care organizations or welfare organizations dealing with help for

¹ Portions of this chapter have been published in Dutch in: Heeren-Bogers, J., Kaptein, M., & Soeters, J. (2013). De harde noodzaak van soft-controls. Een onderzoek naar zorgvuldig financieel en materiaal beheer bij defensie. *Maandblad voor Accountancy en Bedrijfseconomie*, 87(5), 185-197.

battered women or the employment of the handicapped (Seibel, 1996: 1019). The extent to which cost awareness is present among military employees is foreseen to be influenced by the existence of subcultures between the “hot” and “cold” organization (Soeters, 2000: 473 and Soeters et al., 2006: 246-248). Employees in the operational organisation parts, especially those who are deployed on a regular basis, may feel that decisions regarding their actions to perform the three main tasks should not be influenced by other goals, such as lowering costs. This is similar to healthcare practitioners in ‘managed care systems’, assuming responsibility for both the financing and provision of healthcare. According to Feldman et al. (1998: 1630) managed care diminishes the ability of the physician to place the patient’s interest first. This attitude towards costs can be represented in the fact that the values and norms interacting with the completion of the three main tasks are seen as more important. In this case, Snider (1999: 17) refers to Huntington (1957: 61) who makes quite clear that the professional function of the military, the management of violence and the responsibility for military security of the state, is the principal determinant in the military ethos. Moreover, these cultural aspect are expected to be reinforced due to on-the-job experience when an employee is deployed, because for those employees performing the three main tasks is rewarded more directly than following financial and administrative procedures. Nonetheless, the supportive organisational parts are less concerned with these main tasks, since those parts are more comparable to an ordinary office organization, where bureaucracy with hierarchies, specialization, rational decision making, (strategic) planning, paperwork as well as quality and cost control are the main components (Soeters et al., 2006: 246). This results in the expectation that values and norms concerning the organizational goal of increased financial performance are more important – which are norms and values that are atypical for the military culture. Therefore it is expected that increasing presence of the military professional culture will lead to decreasing cost awareness. The idea here was that civilians would care more about managing the organization’s financial and material resources properly, whereas ‘core’ military people would care less, occupied as they are with other more salient aspects of the organization’s core business; it was seen as an indication of military culture (e.g.. Soeters, 2000). The first hypotheses are therefore:

- H_{5.1a}: *The more adherence to the military professional culture, the lower the level of cost awareness of managers and employees and subsequently more careless financial management within the Dutch Defence organization.*
- H_{5.1b}: *The more adherence to the military professional culture, the lower the level of cost awareness of managers and employees and subsequently more careless material resources management within the Dutch Defence organization.*

In addition to organisational culture, different control mechanisms can be applied to stimulate careful management of resources. ‘Hard’ or formal controls are the established, often legally enforced, standards of striving for optimal degrees of management control (Merchant and Van der Stede, 2012). The classical instruments in formal control are risk analysis, internal auditing, segregation of duties, rules and procedures, and recording. These hard controls should be seen as the necessary rules of the game. Without them, no one

would know what is right or wrong. Clearly, 'hard' or formal (generally legally based) control practices constitute the foundation of all management control practices in organizations, particularly in government-led public sector organizations. For example, a study about corruption control in the United States found that "in many ways, legal frameworks for corruption control serve the United States well. Legislation at the federal and state levels is usually well crafted and enforced, and is taken seriously by citizens and officials" (Johnston, 2012: 336). As such, they are expected to contribute to careful financial and material resources management. This leads to the following hypotheses:

- H_{5.2a}: *The more hard controls are present in an organization, the more carefully its employees use the financial resources of that organization.*
- H_{5.2b}: *The more hard controls are present in an organization, the more carefully its employees use the material resources of that organization.*

However, hard controls do not necessarily keep organizations under control. As already described in paragraph 1.2, a poor formal governance is not the main cause of the incidents at large companies. Above all, it is the human factor which determines the effectiveness of the governance system Mouthaan (2007: 600). This is also the case in the earlier mentioned study of corruption control in the United States (Johnston, 2012: 337): An extensive legal framework does not indicate an absence of problems. American legislation is often criticized for overreaching (e.g. conflict-of-interest rules and climates of supervision so oppressive as to reduce efficiency, discourage innovation and creativity). Furthermore there is the possibility that the formal framework might 'control' less through the abuses it prevents than by what it allows. This directs the attention to the importance of values-based corruption control which are more of a general idea than a fixed methodology. They are based on the notion that popular values, social sanctions, and widely shared conceptions of right and wrong should play an important role, alongside laws and punishments, in guiding the uses of public resources. Hence, there is an increasing need for soft controls. According to Roth (1998: 32) it is clear that the vast majority of business failures were not the result of inadequate tangible internal controls, but the result of weaknesses in the control environment, which is the realm of soft controls. Soft controls, are associated with commitment of employees who regulate their behaviour themselves and external factors with a more implicit character to guide employees towards careful behaviour. Leading by example, creating an open atmosphere where dilemmas can be discussed, and rewarding the right and sanctioning the wrong behaviour, are different ways to control employee behaviour. These soft controls, the informal control practices, are expected to guide employees to behave carefully with respect to the organization's resources. This leads to the following hypotheses:

- H_{5.3a}: *The more soft controls are present in an organization, the more carefully its employees use the financial resources of that organization.*

H_{5.3b}: *The more soft controls are present in an organization, the more carefully its employees use the material resources of that organization.*

Recognizing and applying hard controls gives employees a direction on how one should behave, despite the level of military culture, leading to an increasing carefulness of the management of resources². This leads to the following hypotheses:

H_{5.4a}: *Hard controls will diminish the negative relationship between military professional culture and financial management.*

H_{5.4b}: *Hard controls will diminish the negative relationship between military professional culture and material resources management.*

Soft controls, are associated with commitment so employees regulate their behaviour themselves rather than that their behaviour is based on external pressure and sanctions. The extent to which an organization has self-regulating, self-sustainable and self-corrective capacity (Kaptein, 2008: 924) can lead to more careful management of the financial and material resources despite the level of military culture. This leads to the following hypotheses:

H_{5.5a}: *Soft controls will diminish the negative relationship between military professional culture and financial management.*

H_{5.5b}: *Soft controls will diminish the negative relationship between military professional culture and material resources management.*

Besides these five hypotheses, it is interesting - given the idea that management controls constitute a system (Grabner and Moers, 2013: 409) or a package (Malmi and Brown, 2008: 291; Bedford and Malmi, 2015: 2) - to examine not only the straightforward positive causality of hard and soft controls on financial and material resources management but also the interplay between them. For example, Abernethy and Brownell (1997: 233) found that management accounting research has predominantly focused on the nature of control system design in manufacturing production settings where tasks are considered to be well suited to the use of accounting based (formal or hard) controls. They concluded that in other settings organizations need to design their control systems around a variety of non-accounting, behavioural, and personnel (informal and soft) controls. Merchant and Van der Stede (2012: 88-94) pointed to cultural and personnel controls adding to the classic (formal and hard) results and action controls. Simons (1995) found the solution in the four levers

² The mediation effect of cost awareness in the relationship between military professional culture and careful management at hypothesis 4 and 5 is disregarded. So hypothesis 4 and 5 test whether there is an interaction effect of hard and/or soft controls on the direct relationship between military professional culture and careful management. That is why in Figure 5-1 the construct of cost awareness is displayed as a dotted line.

of control, which each in their own way contribute to the achievement of the goals of the organization. The classic formal and hard controls, boundary and diagnostic systems, were supplemented in his taxonomy by a belief and interaction control system. Research into formal and informal ethical infrastructure found support for an interactive effect of formal systems that direct employees towards ethical acts and informal systems that direct employees toward fraudulent behaviour (Smith-Crowe et al., 2015: 798-799). This study found that the effectiveness of formal systems is greater when participants feel pressure from their co-workers or supervisors to violate their organizations' standards. Conversely in the absence of a strong push to do wrong, the strength of formal systems has little impact on fraudulent behaviour. So focusing on formal systems, while ignoring informal systems, can lead to unnecessary costs and frustration for organizations truly committed to discouraging unethical behaviour.

Hence, this study looks for the possible combined or interacting relationships between hard and soft controls in their impact on financial and material resources management. This leads to the following hypotheses:

- H_{5.6a}: *Soft controls will strengthen the positive relationship between hard controls and financial management.*
- H_{5.6b}: *Soft controls will strengthen the relationship between hard controls and material resources management.*

The six hypotheses for this chapter are shown in a conceptual model in Figure 5-1.

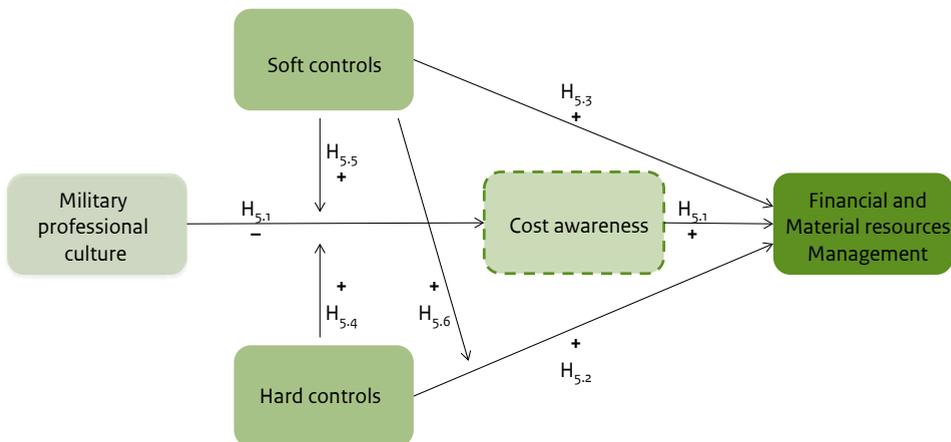


Figure 5-1 Conceptual model

5.2 Findings

5.2.1 Descriptive statistics and Pearson correlations

As Table 5-1 and 5-2 show, there are no significant correlations between the control variables and financial and material resources management. Respondents assess financial management slightly lower (average 4.49) than material resources management (average 4.88). The dependent variables for financial and material resources management and the independent variables regarding the hard and soft controls demonstrate logical, significant inter-correlations. There are no significant inter-correlations between the dependent variables and military culture and cost awareness. Hard controls and soft controls show a high correlation, especially regarding financial management. The size of the strongest association at .52 (at $p < .01$) does not constitute cause for concern regarding the independence of the two constructs because the correlation does not exceed the criterion of .8 for bivariate collinearity (Field, 2009: 648) or the criterion of .7 suggested by Tabachnick and Fidell (1996: 86)

		Range	Mean	SD	1	2	3	4	5	6	7
1	Financial management	1-6	4.49	.78							
2	Age	1-6	3.94	.93	.11						
3	Gender	0-1	.91	.29	.11	.22**					
4	Military professional culture	1-13	4.78	3.36	-.06	-.26**	.20**				
5	Hard controls	0-6	3.62	1.41	.30**	.22**	.03	-.36**			
6	Soft controls	1-6	4.33	.61	.52**	.15*	.00	-.21**	.49**		
7	Cost awareness	1-6	3.77	.95	.01	-.05	.05	-.08	.07	-.01	

* $p < .05$; ** $p < .01$

Table 5-1 Descriptive statistics and Pearson correlations financial management (N=220)

		Range	Mean	SD	1	2	3	4	5	6	7
1	Material resources management	1-6	4.88	.77							
2	Age	1-6	3.86	.94	.04						
3	Gender	0-1	.96	.19	.01	.12					
4	Military professional culture	1-13	5.63	3.22	.13	-.29**	.13				
5	Hard controls	0-6	3.71	1.27	.18*	.17*	.00	-.23**			
6	Soft controls	1-6	4.41	.61	.34**	.03	-.09	-.05	.27**		
7	Cost awareness	1-6	3.78	.94	-.01	-.10	-.09	-.07	.01	-.08	

* $p < .05$; ** $p < .01$

Table 5-2 Descriptive statistics and Pearson correlations material resources management (N=179)

5.2.2 Analyses of variance

Since the respondents were drawn from a sample of 111 units within the organization, an interesting question before hand is if the characteristics of the different services affect the assessment of resource management, the degree of military culture, the degree of cost awareness and the use of hard and soft controls. Several analyses of variance (abbreviated ANOVA, Field, 2009: 353) have been conducted. When a significant difference was found, post hoc comparisons using the Hochberg's GT2 procedure³ was used for further analysis.

A oneway ANOVA test on financial management [$F(6, 320) = .92, p = .479$] shows that there is no significant difference in the perception of careful financial management between the four military services (Navy, Airforce, Army and Marechaussee), the two supporting services (Joint Support Command, Materiel Organisation) and the Central Staff. The same applies to material resources management [$F(5, 266) = .32, p = .901$].

The result of the oneway ANOVA test on the degree of military culture shows significant differences between the services [$F(6, 549) = 24.639, p = .000$]. As expected, the four military services have a higher score on military culture than the two supporting units and the Central Staff. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the meanscore on military culture for the Army ($M = 6.38, SD = 3.41$) and the Navy ($M = 6.81, SD = 3.79$) is significantly higher than the meanscore on military culture for the Defence Materiel Organization ($M = 2.43, SD = 2.14$), the Joint Support Command ($M = 2.64, SD = 2.58$) and the Central Staff ($M = 3.72, SD = 2.47$). Post hoc comparisons using the Hochberg's GT2 procedure indicated that the meanscore on military culture for the Airforce ($M = 5.12, SD = 2.97$) and the Marechaussee ($M = 5.11, SD = 1.68$) is significantly higher than the meanscore on military culture for the Defence Materiel Organization ($M = 2.43, SD = 2.14$) and the Joint Support Command ($M = 2.64, SD = 2.58$).

The result of the oneway ANOVA test on the degree of cost awareness shows significant differences between the services [$F(6, 591) = 3.14, p = .005$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the meanscore on cost awareness for the Army ($M = 3.69, SD = .94$) is significantly lower than the meanscore on cost awareness for the Defence Materiel Organization ($M = 4.19, SD = .94$),

The result of the oneway ANOVA test on the five hard controls together show significant differences between the services [$F(6, 544) = 8.90, p = .000$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the meanscore on hard controls for the Army ($M = 3.32, SD = 1.56$) is significantly lower than the meanscore on hard controls for the Navy ($M = 4.51, SD = .91$), the Airforce ($M = 4.09, SD = 1.45$), Defence Materiel Organization ($M = 4.18, SD = 1.01$) and the Joint Support Command ($M = 4.22, SD = 1.15$).

3 According to Field (2009:375) Hochberg's GT2 post hoc procedure is preferred when the sample sizes are very different. As mentioned in Chapter 3, this is the case in this study since the number of units in the sample vary between the services reflecting the size of the different organizational parts (Army: 51 units, Airforce: 8 units, Navy: 18 units, Marechaussee: 5 units, Defence Materiel Organization: 6 units, Joint Support command: 15 units and Central Staff: 8 units).

The results on the seven soft controls together regarding financial management show significant differences between the services [$F(6, 458) = 5.60, p = .000$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the meanscore on soft controls for the Marechaussee ($M = 3.95, SD = .79$) is significantly lower than the meanscore on soft controls for all other parts of the Dutch Defence organization⁴.

The seven soft controls together regarding material resources management also show significant differences between the services [$F(6, 458) = 3.76, p = .001$]. Post hoc comparisons using the Hochberg's GT2 procedure indicated that the meanscore on soft controls for the Marechaussee ($M = 4.08, SD = .68$) is significantly lower than the meanscore on soft controls for the Navy ($M = 4.76, SD = .45$) and the meanscore on soft controls for the Joint Support Command ($M = 4.49, SD = .52$).

5.2.3 *Mediation effect cost awareness*

To determine whether cost awareness mediates the relation between military professional culture and financial and material resources management at first a regression analysis was performed between military professional culture and cost awareness. This relation proved not to be significant ($\beta = -.07; p = .11$) so further investigation of the possible mediation effect was pointless and hypotheses 1a and 1b is not confirmed. During the remainder of the analyses the relation between professional military culture and resources management is tested directly. This also applies to the relation between cost awareness and resources management.

5.2.4 *Regression analyses financial management*

In the analyses we have inserted all control and independent variables respectively, in regression models going up from 1 till 7. First, the control variables were inserted in Model 1. In Model 2 military professional culture was added to the control variables. In Model 3 hard controls were added and in Model 4 soft controls were added. In Model 5 cost awareness is included. To pursue the testing of hypothesis 5.5a and 5.5b, we calculated hierarchical multiple regression analyses as before, but now adding a sixth model including the product terms of 'hard controls x military culture' and 'soft controls x military culture'. At last, to pursue the testing of hypothesis 5.6a and 5.6b, we included in Model 7 the product term of 'hard controls x soft controls'. This inclusion in multiple regression is an appropriate way of testing for interaction (Allison, 1998: 167). We used listwise deletion to deal with missing values.

⁴ The Army ($M = 4.27, SD = .66$), the Navy ($M = 4.72, SD = .44$), the Airforce ($M = 4.40, SD = .52$), Defence Materiel Organization ($M = 4.45, SD = .56$), the Joint Support Command ($M = 4.49, SD = .54$) and the Central Staff ($M = 4.66, SD = .40$).

In Table 5-3 the results of seven hierarchical multiple regression analyses, on financial management are summarized.

	Financial management (N = 219)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Constant	3.55***	3.68***	3.32***	1.18**	1.18**	1.16*	1.50**
Gender	.07	.09	.08	.08	.08	.08	.08
Age	.11	.09	.04	.02	.02	.02	.03
Education level	.11	.10	.06	.03	.03	.03	.02
Span of control	.08	.10	.08	.09	.09	.08	.09
Military professional culture		-.08	.02	-.04	-.04	.02	.02
Hard controls financial management			.28***	.06	.06	.06	.06
Soft controls financial management				.49***	.49***	.49***	.44***
Cost awareness					.01	.00	-.02
Hard controls x military professional culture						-.10	-.11
Soft controls x military professional culture						.07	.02
Hard controls x soft controls							-.12⁺
R ²	.04	.05	.12	.30	.30	.30	.31
Adjusted R ²	.03	.03	.09	.27	.27	.27	.28
F statistic	2.48*	1.05	15.76***	54.02***	.00	1.04	2.84⁺
* p < .05; ** p < .01; *** p < .001. two tailed-test. + p < .10 (quasi-significant)							

Table 5-3 Regression analyses financial management

The results in Model 1 demonstrate that none of the control variables have a significant effect on the assessment of financial management. Model 2 shows that military professional culture also does not have a significant impact on financial management.

As for Hypothesis 5.2a, Model 3 shows that when hard controls are added to the control variables and military professional culture, they have a significant positive impact on financial management. However, when soft controls are added (Model 4), the hard controls no longer show this significant effect. Therefore, Hypothesis 5.2a is not confirmed⁵.

5 Reversing the order in which variables are inserted into the regression analyses, more specifically inserting soft controls before the hard controls, did not lead to other results.

However, Hypothesis 5.3a regarding the impact of soft controls on financial management is confirmed. The results in Table 5-3 demonstrate that the soft controls, when inserted together with the hard controls (Model 4), impact significantly and positively on financial management.

The results in Model 5 show that cost awareness has no significant impact on financial management. This can possibly be explained by the fact that cost awareness is not that relevant to the respondents in this study who operate at a relative low level in the organization. Budgets and financial consequences are assigned at a higher level in the organization making the respondents lacking of cost *insight* let alone cost *awareness*.

As for hypotheses 5.4a and 5.5a, the results in Model 5 and 6 demonstrate that hard and soft controls have no significant impact on the perceived quality of financial management among core military people than among civilians and supporting servicemen since the product terms were not significant.

As for Hypothesis 5.6a, the first indication of a combined effect of hard and soft controls can be seen from the results of Model 4 shown in Table 5-3. The introduction of soft controls in the fourth model resulted in a significant increase in the adjusted R^2 of 18%. Model 7 in Table 5-3 does show limited evidence to support Hypothesis 5.6a since the product term 'hard controls x soft controls' is quasi-significant.

However, this is not the final result regarding the interplay between the two forms of control, as hard controls had a direct effect on financial management which disappeared after inserting soft controls into the analysis. A test to search for a mediation effect – hard controls impact on financial management through soft controls - proved to be successful (Baron and Kenny, 1986: 1176). Results of the Sobel test (1982)⁶ suggest that the association between hard controls and financial management is significantly mediated by soft controls (Sobel's $Z = 5.91$, $p < .01$).

■
6 Calculation for the Sobel test was performed on an interactive calculation tool for mediation tests by K.J. Preacher (Vanderbilt University) G.J. Leonardelli (University of Toronto) <http://quantpsy.org/sobel/sobel.htm>

5.2.5 Regression analyses material resources management

The results of the hierarchical multiple regression analyses on material resources management are summarized in Table 5-4.

	Material resources management (N = 178)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Constant	4.63***	4.38***	4.04***	2.46***	2.30**	2.58***	2.51***
Gender	.01	-.02	-.02	.01	.01	-.00	.00
Age	.04	.09	.06	.05	.05	.05	.04
Education level	.01	.03	.00	-.05	-.05	-.07	-.08
Span of control	.03	.01	-.01	.00	.01	.03	.03
Military professional culture		.15 ⁺	.20*	.19*	.19*	.15*	.14 ⁺
Hard controls material resources management			.21**	.13 ⁺	.13 ⁺	.13 ⁺	.11
Soft controls material resources management				.32***	.32***	.29***	.32***
Cost awareness					.04	.03	.02
Hard controls x military professional culture						-.10	-.08
Soft controls x military professional culture						.19*	.22**
Hard controls x soft controls							.12
R ²	.00	.02	.06	.15	.15	.19	.20
Adjusted R ²	-.02	-.01	.03	.12	.11	.14	.14
F statistic	.13	3.46 ⁺	7.17**	18.22***	.29	3.20*	2.03
* p < .05; ** p < .01; *** p < .001. two-tailed test. + p < .10 (quasi-significant)							

Table 5-4 Regression analyses material resources management

Here again, the results in Table 5-4 (Model 1) demonstrate that none of the control variables have a significant effect on the assessment of material resources management.

The first hypothesis concerns the particular character of the defence organization. In Table 5-4 (Model 2) we find a first result in this connection. If the military professional culture dominates in an organizational unit, the quality of the material resources management is significantly perceived to be better. This direct impact of the military professional culture in these analyses is not in accordance with what was expected in the first place⁷, but can easily be explained. Military people – particularly those in action - depend on their military gear,

7 From the theory we argued that cost awareness was negatively influenced by military culture and that a low level of cost awareness had a negative impact on financial or material resources management. However, we did not find support for this presumed mediation effect of cost awareness between military culture and resources management. In fact, as stated before, we did not find support for the relation between military culture and cost awareness.

such as helmets, flak jackets, weaponry or vehicles, because these are matters of life-and-death when the heat is on. People are not likely to be negligent or sloppy with materiel that will be indispensable in surviving life-threatening situations.

As for Hypothesis 5.2b, Model 3 and 4 in Table 5-4 show that only when hard controls are separately added to the control variables they have a significant positive impact on material resources management. When hard and soft controls are both added to the control variables, the hard controls no longer show this significant effect (there remains a quasi-significant effect of hard controls though, till the last model). This is similar to what we observed with respect to financial management. Therefore Hypothesis 5.2b, like Hypothesis 5.2a, is not confirmed. However, reversing the order in which variables are inserted into the regression analyses, more specifically inserting soft controls before the hard controls, showed that adding the hard controls leads to a significant increase of R^2 from 14% to 16%. As before, the quasi-significant effect of the hard controls disappears in the last model.

Hypothesis 5.3b regarding the impact of soft controls on material resources management is confirmed. The results in Table 5-4 (Model 4) demonstrate that the soft controls impact significantly and positively on material resources management.

Similar to the results of the regression analyses regarding financial management, Model 5 shows that cost awareness has no significant impact on material management.

As for hypothesis 5.4b, the results in Model 6 demonstrates that hard controls do not have a moderating effect in the relation between military professional culture and material resources management since the product terms was not significant.

Regarding material resources management, the opposite effect of soft controls can be discerned: here the elaborated analysis as shown in Figure 5-2 demonstrates that soft controls have a significantly higher impact on the perceived quality of material resources management among core military people than among civilians and supporting servicemen. As said, the survival of the men and women in action very much depends on the presence and general condition of their gear. Therefore, hypothesis 5.5b can be fully confirmed.

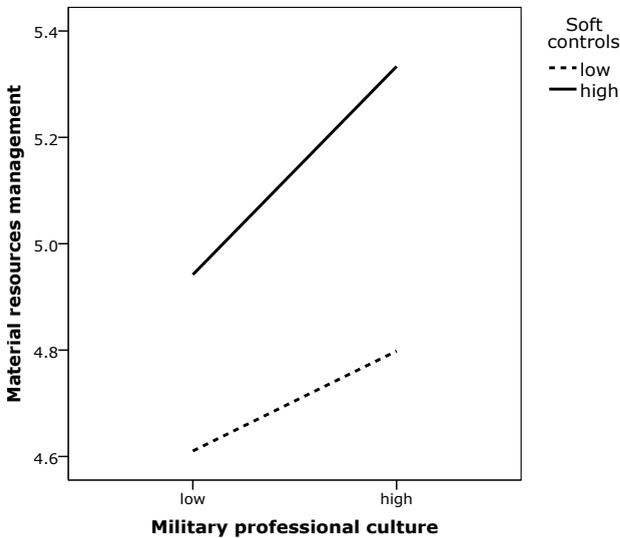


Figure 5-2 Soft controls strengthen the relation between military culture and material resources management

As for Hypothesis 5.6b, the first indication of an interplay between hard and soft controls can be seen from the results of Model 4. The introduction of soft controls in the fourth model resulted in a significant increase in the adjusted R^2 of 9%. However, model 7 in Table 5-4 shows no evidence to support Hypothesis 5.6b since the product term was not significant.

For the same reasons we had with respect to financial management, we tested for a mediation effect between hard and soft controls (Baron and Kenny, 1986: 1176). Here again, the results of the Sobel test (1982) suggest that the association between hard controls and material resources management is significantly mediated by soft controls (Sobel's $Z = 2.79$, $p < .01$).

5.3 Subconclusion hard and/or soft controls

This chapter tried to unravel the interplay between hard and soft controls in realizing careful employee behaviour regarding the use of financial and material resources in the Dutch Defence organization. We did not find support for hypotheses 5.1a and 5.1b regarding whether cost awareness mediates the relation between military professional culture and financial and material resources management. The regression analysis between military professional culture and cost awareness proved not to be significant so further investigation of the possible mediation effect was pointless.

Hypotheses 5.2a and 5.2b regarding the impact of hard controls on the careful use of financial and material resources could also not be confirmed. When hard controls are added to the control variables and military professional culture, they have a significant positive impact

on financial and material resources management. But when soft controls are added (Model 4), the hard controls no longer show this significant effect. However, we did find evidence that soft controls have a positive impact on both financial and material resources management. Therefore hypotheses 5.3a and 5.3b are confirmed.

As for hypotheses 5.4a and 5.4b, the results of the regression analyses demonstrate that hard controls do not have a diminishing effect in the negative relation between military professional culture and financial or material resources management. We also did not find evidence for a diminishing effect of soft controls on the negative relation between military professional culture and financial management thereby rejecting hypotheses 5.5a. The opposite applies to hypothesis 5.5b regarding material resources management: here the elaborated analysis demonstrates that soft controls have a significantly higher impact on the perceived quality of material resources management among core military people than among civilians and supporting servicemen.

Finally, following the results of this study hypothesis 5.6a could be confirmed with caution (based on a quasi-significant interaction term). Soft controls strengthen the positive relationship between hard controls and financial management. This strengthening relation between hard and soft controls has not been found regarding material resources management. Therefore hypothesis 5.6b has to be rejected because the impact of hard and soft controls complementing each other is not larger than the impact of both foci of management control separately.

So this study demonstrates that when respondents experience soft controls in their work environment they have a more positive perception of the carefulness of financial and material resources management. Hard controls also had a positive impact on financial and material resources management in the regression analyses. However, this impact disappeared when the soft controls were entered into the equation. This result can be explained by the fact that the impact of hard controls on financial and material resources management is mediated by soft controls. We found evidence to support this mediation effect. Only through soft controls do hard controls come to life. This interplay has not been demonstrated empirically before, but is quite understandable. In modern societies and organizations, formal rules, regulations and procedures are indispensable, but the way they are applied and followed by managers and employees alike determines how and to what extent these formal instruments are influential in the organization's everyday life.

To conclude, this chapter demonstrates that the Dutch Defence organization in any case needs soft controls to improve careful financial and material resources management. Since hard controls are often legally enforced, this study demonstrates that the Dutch Defence organization can no longer stick to hard controls without paying attention to soft controls.

6

6 The impact of specific hard and soft controls

The previous chapter demonstrated that soft controls and hard controls, if mediated by soft controls, have a positive influence on the carefulness of financial and material resources management in the Dutch Defence organization. This is a global indication of the impact of the control-dynamics at work, but it is not yet precise enough. In the literature review in chapter 2 and the preliminary analyses in chapter 4, we have seen that both hard and soft controls can be subdivided in various categories. The next question therefore is whether all these categories are equally important in explaining the quality of financial and material resources management. Managers want to focus their attention as much as possible, and because of this tendency the current chapter attempts to uncover which hard controls, i.e. *segregation of duties, internal auditing, procedures and rules, recording and risk analysis* and which soft controls, i.e. *clarity, congruency, feasibility, supportability, transparency, discussability and sanctionability* have a significant impact on the carefulness of the financial and material resources management in the Dutch Defence organization. As such, this chapter¹ provides the answer to the fourth sub-question of this dissertation:

Which specific hard and soft controls in what intensity are effective in managing the financial and material resources of the Dutch Defence organization?

6.1 Hypotheses hard controls

Formal, hard controls constitute the origin of control theory and practice (e.g., Merchant, 1982). Zenger et al. (2002: 278) define formal institutions as rules that are readily observable through written documents or rules that are determined and executed through formal position, such as authority or ownership. As such, it aligns with the development of the bureaucracy as an archetype of modern organizing. Two major principles of Max Weber's model of bureaucracy are the existence of fixed and official jurisdiction areas which are generally ordered by rules and the development of an office hierarchy and graded levels of authority (Gerth and Wright Mills, 1958: 156). These principles are intended to insure that the actions in the organization are consistent, predictable and minimally influenced by personal considerations (Foster, 1990: 223). Therefore, we expect that hard controls have a positive effect on the general quality of the financial and material resources management in the organization.

However, this impact is not always and under all circumstances expected to be straightforward and linear. Hard controls constitute the positive, technical function of the formal bureaucracy as they provide guidance to the employees to display behaviour that is in accordance with the organization's goals (e.g. Adler and Borys, 1996). On the

¹ A first draft of this chapter, focusing on the soft controls, has been submitted in the form of a paper and presented at the Annual 15th Conference of the European Academy of Management (EURAM) 2015 in Warsaw.

other hand, one can question if (too) much of these hard controls will be positive. Adler and Borys (1996: 81-82) specify three forces that encourage the coercive type of bureaucracy: first, asymmetries of power between managers and employees; second, asymmetries in the distribution of other resources like knowledge, skills and rewards and third, an absence of reality checks with competitors, clients or customers which leads to a focus that tends to be inwardly. In addition, Weibel, Den Hartog, Gillespie, Searle, Six and Skinner (2016) found that poorly implemented control systems that are inconsistent, overly rigid or incentivize untrustworthy behaviour can undermine trust in the organization. In general, at some point many influences have diminishing returns, making inverse U-shaped relations more likely than positive linear relations. This idea will constitute the context for the following specific hypotheses concerning each of the different types of hard controls.

6.1.1 Segregation of duties

Segregation of duties involves breaking up the tasks necessary for the accomplishment of certain sensitive duties, thus making it impossible or at least difficult, for one person to complete the entire task on their own (Merchant and Van der Stede, 2012: 82). Segregation of duties can take many forms, depending on the specific duties to be controlled. Hall (2011: 135-136) distinguishes between three different objectives applicable to most organizations: first, the segregation of duties should be such that the authorization for a transaction is separate from the processing of the transaction; second, responsibility for the custody of assets should be separate from the record-keeping responsibility and last, the organization should be structured so that a successful fraud requires collusion between two or more individuals with incompatible responsibilities.

According to Gligor, Gavrilă and Ferraiolo (1998: 172) the purpose of segregation of duties (also called separation of duties) is to prevent that failures of omission or commission within an organization are caused by collusion among individuals and, therefore, that such failures are riskier and less likely, and that chances of collusion are minimized by assigning separate tasks to individuals with different skills or divergent interests. So, a positive effect can be expected from segregation of duties.

However, according to Merchant and Van der Stede (2012: 127), segregation of duties makes the control system tighter thereby increasing internal complexity. According to De Sitter et al. (1997: 498) this means the creation of more staff functions or the enlargement of staff-functions and/or the investment in vertical information systems. This is called the strategy of “complex organizations and simple jobs”, which one sees often occurring in elaborated and mature bureaucracies. The opposite strategy of “simple organizations and complex jobs” involves changing fragmented direct tasks in meaningful larger tasks, reintegrating thinking and doing or merging direct and indirect tasks. This strategy results in less support staff, less bureaucracy and better jobs on the office floor (De Sitter et al., 1997: 498). In general, the common strategy of having “complex organization and simple jobs” leads first to a complicated organizational structure and second to less autonomy for the individual worker. The latter is expected to have negative implications for job performance. At least, Morgeson,

Delany-Klinger and Hemingway (2005: 399) found proof in the opposite direction. In their study, job autonomy was positively related to role breadth, which means integration of more tasks into the focal role, and role breadth was positively related to job performance.

Next to the possible negative effects of segregation of duties on job autonomy and as a consequence job performance, Merchant and Van der Stede (2012: 82) state that the effectiveness of segregation of duties is limited as it cannot completely eradicate possible collusion. The critical assumption here is that those who do not have the authority for certain actions or decisions cannot violate the constraints that have been established. Although collusion requires devious employees to reveal their fraudulent behaviour to other employees whom they seek to engage in the scheme, survey evidence suggests that it occurs commonly nonetheless, either by collusion between employees and third parties or by collusion among employees or management themselves (KPMG Fraud Survey 2003; 2009).

All together, we formulate the following hypothesis with respect to the hard control segregation of duties, implying that segregation of duties has positive effects up to a certain point after which increased organizational complexities will lead to reduced benefits

H_{6.1}: *In the Dutch Defence organization segregation of duties has a curvilinear (inverse U-shaped) impact on financial and material resources management.*

6.1.2 Internal auditing

Internal auditing is a check on the adequacy and the effectiveness of the organization's other controls. The internal controls are the door through which internal auditors examine and evaluate the organization's functioning (Eden and Moriah, 1996: 262). The objective of internal auditing can be derived from the General Standard of the Institute of Internal Auditors: assuring integrity of financial and operational information and reports; determination that the organization is complying with laws, statutes, policies, procedures and financial instruments; examination to determine that the organization is operating efficiently and economically; determination that the organization is accomplishing the goals and objectives for which resources have been provided and the determination that organization assets are safeguarded (Dittenhofer, 2001: 444).

Internal auditors are appointed by management and report to management. As such they serve as "the eyes and ears" of management (Eden and Moriah, 1996: 263). Cohen and Sayag (2010: 296) argue that by detecting weaknesses in management operations, internal auditing provides a basis for correcting deficiencies that have eluded the first line of defence before these deficiencies become uncontrollable or are exposed in the external auditor's report. As an example, Coram, Ferguson and Moroney (2008: 543) used a self-reported measure of misappropriation of assets fraud based on the fraud data from the 2004 KPMG Fraud Survey, which reported fraud from 491 organizations in the private and public sector across Australia and New Zealand. Their findings suggest that internal audit adds value through improving the control and monitoring environment within organizations to detect and self-report fraud.

These results also suggest that keeping the internal audit function within the organization is more effective than completely outsourcing that function.

Specifically focusing on the public sector, the study of Keating, Fischer, Gordon and Greenlee (2005: 303) proved that overall, compliance with federal regulations appears to be high, but smaller non-profits and those who are not classified as low-risk have a significantly higher rate of adverse audit findings. According to Ma'ayan and Cermeli (2016: 348) research indicates that in a relatively large part of organizations, deficiencies tend to re-occur. This suggests that even if auditors do quality work (e.g., reporting accurately and depicting a fair picture of the organizational system), auditees often overlook reported malfunctions and fail to learn from them, and may be reluctant to take the necessary steps to rectify and enhance effectiveness. Their study shows how auditors and the organization's management team facilitate learning from discrepancies and even transgressions, and point out that when this is proactive and collaborative in nature, this learning helps improve work processes and the outcomes of organizational units in terms of efficiency, effectiveness, and ethical behaviour (Ma'ayan and Cermeli, 2016: 356).

Thus, internal auditing is intended to increase the organization's accountability and transparency. As such, the impact on careful financial and material management is likely to be positive. However, internal auditing also has limitations (Merchant and Van der Stede, 2012: 626). One is that internal audits are performed only on a periodic basis and thus provide little protection against problems occurring in the interim except to the extent that they provide a deterrent effect. Audits also can create negative reactions, such as defensiveness, especially when individuals feel their integrity is questioned or their autonomy is jeopardized. Funnell and Wade (2012: 440) noted that the first set of auditee reactions to performance audits are fear and suspicion, which embraces emotions ranging from mistrust to paranoia. The third limitation of audits, mentioned by Merchant and Van der Stede (2012: 626) concerns the fact that audits can be costly. They consume considerable time from expert auditors as well as from company employees who have to prepare information for the auditors to review. Moreover, audits can assess only the past.

These limitations might be traced back to a sub-group conflict described by Nickell and Roberts (2014: 219). Traditionally the internal audit function has been designed to help ensure reliable accounting information and to safeguard company assets (Speklé, van Elten and Kruis, 2007: 102). As such, the internal audit function, operating as a sub-group of an organization, could reflect values of control, compliance, and stewardship and in essence ignore or de-emphasize core organizational goals of increased profitability and shareholder wealth. Everett and Tremblay (2014: 188) evidenced this sub-group conflict through quotes of interviewees who were part of management: "I'm not happy with them coming in because they have no added value to my work as a manager. I do recognize it as a necessary evil". "Internal auditors do not have any inherent interest in profitability . . . their goal is not to make things more efficient but to comply". Since the mid-2000's the internal audit function seems to be evolving in a consultative partnership role with management in which internal

auditors are able to improve an organization's governance risk management and internal control processes (Nickell and Roberts, 2014: 219; Güner, 2008: 22; Speklé et al., 2007: 102). Hence, listening to internal auditors speak of their work, it would appear they take the role of detecting irregularities and controlling dysfunctional behaviours somewhat more seriously than consulting with management or adding value/utility to an organization (Everett and Tremblay, 2014: 188).

In conclusion, the study of Ma'ayan and Cermeli (2016: 356) demonstrated that internal auditing can serve as a useful mechanism for improving ethicality, efficiency and effectiveness in the organization when top management explicitly use the internal audit function to promote a learning orientation instead of a performance orientation (e.g. Bell and Kozlowski, 2002: 503). However, when internal auditors place too much emphasis on detecting irregularities, this may lead to revealing more, but perhaps also more minor problems than would have been detected otherwise. In this way, their role seems as much if not more coercive than enabling (Adler and Borys, 1996: 81-83), aimed more at obtaining compliance than partnering with management. This leads us to formulate the following hypothesis with respect to the internal auditing, with the same curvilinear characteristic we saw before:

H 6.2: *In the Dutch Defence organization internal auditing has a curvilinear (inverse U-shaped) impact on financial and material resources management.*

6.1.3 Procedures and rules

Gil-Garcia and Martinez-Moyano (2007: 273) define *rules* as “probabilistic generalizations of behaviour” and systems of rules as “the set of written organizational codes (called rules) and unwritten organizational norms (called norms) that conditions action in organizations.” *Procedures* are the operationalization of the rules, mostly visible, paper instructions, which describe the steps the employee has to go through while executing their part of the process. The rules and procedures within an organization are often derived from, or aligned with external rules and regulations, such as governmental laws and contracts. Achieving employee adherence to organizational rules and procedures is critical for successful coordination and functioning within organizations (Tyler and Blader, 2005: 1143).

Many rules and procedures serve legitimate and important social and organizational purposes. Using formal procedures to make decisions can engender fairness, and therefore be of service to both employees and employers (Cropanzano and Byrne, 2001: 30). When these rules and procedures turn into excessive or meaningless paperwork, as a surrogate for actual output (Bennett and Johnson, 1979: 447), and/or turn into extensive organizationally based rules and procedures (Hall, 1968: 95) one speaks about “red tape”. It is not even the number of rules, regulations and procedures that causes problems, but mere the resources and energy required to comply with them (Foster, 1990). This leads to the definition of organizational red tape as the rules, regulations and procedures that remain in force and

entail a compliance burden but have no efficacy for the functional object (Bozeman, 1993: 283). A distinction should be made between “rules born bad” versus “good rules gone bad”. The “rules born bad” are the rules that have a compliance burden while not addressing a functional object at their inception. “Good rules gone bad” are functional rules which are transmuted into dysfunctional red tape. Several factors may lead to this, like rule drift which occurs when the meaning of the rule gets lost in organizational antiquity, or rule strain which means that the rule density is too high, sometimes caused by accretion, rules build on top of another (Bozeman, 1993: 288-289).

Quratulain and Khan (2015: 309) examined the effect of red tape on job satisfaction, Public Service Motivation (PSM), and employee attitudes and behaviours. They found that procedural constraints in the form of red tape not only frustrate employees exhibiting low PSM but it can also effect those having high levels of PSM (Quratulain and Khan, 2015: 324). These findings are at odds with the dominant conception that employees endowed with high PSM will always consider rules as legitimate in their intent, and these individuals pursue their determination to serve public interest even when they face barriers such as excessive rules or formalization (Buchanan, 1975: 427; Scott and Pandey, 2005: 174).

A common reaction of organizations to undesired (or even hazardous) events is to add more formal procedures assuming that these additions will guide employee behaviour and thus improve (safety) performance (Katz-Navon, Naveh and Stern, 2005: 1076). However, Cropanzano and Byrne (2001: 38) -following the “escalating spiral of formality and distance” (Sitkin and Roth, 1993: 369)- claim that when a set of rules and regulations becomes larger and larger, it becomes more and more difficult for even a well-meaning firm to comply. This claim is consistent with the suggestion of Brown and Eisenhardt (1997: 28) of a curvilinear relationship between the level of formal structure and organization performance. They found that effective management lays between very structured, mechanistic organization in which bureaucratic procedures were tightly determined, and very unstructured, organic organization, in which there were few, if any, rules responsibilities, or procedures. Katz-Navon et al. (2005: 1085) demonstrated in a study of the health care industry a similar curvilinear relationship between the levels of the perceived detailing of safety procedures and the number of treatment errors. Although it has been clear that a lack of procedures is detrimental to safety performance, their results also show that too many or overly detailed procedures are also associated with lower safety performance. They also demonstrated that this curvilinear relationship was moderated by the priority of safety, which is seen as an informal aspect of the safety climate of the hospitals.

Thus, following Beck and Kieser (2003: 793), Weber points out that by increasing standardization, precision and speed of organizational processes, formal rules considerably contribute to organizational efficiency. And formal rules, in combination with professionalization, restrict the organizational members’ room for egoistic manoeuvres and arbitrary decisions (Weber, 1968: 217). However, issuing excessively extensive rules and procedures tends to elicit negative behavioural reactions -indifference, resistance, alienation- among staff, which induces management on their turn to strengthen (the application of)

the rules and issue even new ones (e.g. Adler and Borys, 1996). This particularly pertains to rules and procedures that are not deemed to be legitimate in the organization or rules and procedures with a low congruency with employees' personal values (Tyler and Blader, 2005: 1153). At the end of the day this may lead to so-called "vicious circles of bureaucracy" in the organization that hamper the adequate functioning of the organization as a whole (Masuch, 1985: 18). Consistent with the message of reform advocated in the public sector, well-meaning employees may become unmotivated in intensely bureaucratic organizations (Moynihan and Pandey, 2007: 47). When rules become an end in itself, rather than the means to an end, goal displacement occurs making it difficult to achieve organizational objectives (Foster, 1990: 224). This lead us to formulate the following hypothesis with respect to the hard control procedures and rules, again implying a point at which the positive impact of rules and procedures may turn into a negative one:

H 6.3: *In the Dutch Defence organization procedures and rules have a curvilinear (inverse U-shaped) impact on financial and material resources management.*

6.1.4 Recording

Most organizations use information systems to set the formal procedures by which data are collected, processed into information and distributed to users (Hall, 2011: 7). The last decades Enterprise Resource Planning systems (ERP-systems) have been introduced in mid-sized and large firms throughout the world (e.g. Kallunki, Laitinen and Silvola, 2011: 20). Prior to this, each function within an organization had its own information system operating separately from the information systems of the other organizational functions (Rom and Rohde, 2007: 41). Maintaining many different computer systems leads to enormous direct costs like storing and rationalizing redundant data. But even more important than the direct costs are the indirect ones: if a company's systems are fragmented, its business is fragmented (Davenport, 1998: 2).

To overcome these problems, organizations sought for organization-wide and integrated information systems like ERP-systems. As ERP-systems are intended to integrate all corporate information into one central database, they allow all information to be retrieved from many different organizational positions and to make any organization object visible (Dechow and Mouritsen, 2005: 692).

Kallunki et al. (2011: 21) claim that since ERP-systems render all corporate information visible and financial information accessible not solely to accountants, this poses challenges for managerial reporting and control. ERP-systems change the role of management accounting by providing management with easy and fast access to relevant and real-time operational data needed in decision-making and management control. According to Nicolaou (2004: 28) ERP-systems are designed to help manage organizational resources in an integrated manner.

Because of the scope of this study, we focus on how ERP-systems can be helpful in improving management activities like allocation and control of the firm's resources, monitoring

of operations and supporting of business strategic decisions. These activities rely on summarized information or exception reports (Shang and Seddon, 2002: 278). They argue, based on their research involving 470 cases in which 55% experience managerial benefits of ERP-systems, that real-time enterprise information helps an organization to achieve better resource management, improved decision making and planning and improved performance in different operating divisions of the organization.

However, this is not the final conclusion towards the expected relation between recording and financial and material resources management. Maas et al. (2014: 93) investigated the use of an organisation-wide ERP-system in the Dutch Defence organization in order to integrate financial and logistics material management. They found proof that infusion² -and thereby success of ERP- is influenced by organisational control in a curvilinear way. Consequently, neither a low nor a high level of control will lead to ERP-users using the system in a highly infused manner but an intermediate amount of control will (Maas et al., 2014: 99). This lead us to formulate the following hypothesis with respect to the hard control recording:

H 6.4: *In the Dutch Defence organization recording has a curvilinear (inverse U-shaped) impact on financial and material resources management.*

6.1.5 Risk analysis

The Society of Risk Analysis (SRA) defines *risk analysis* as “risk assessment, risk characterization, risk communication, risk management, and policy relating to risk, in the context of risks of concern to individuals, to public and private sector organizations, and to society at a local, regional, national, or global level.” (Aven, 2012: 1648). As Kaplan and Garrick (1981: 11) state: we are not able in life to avoid risk but only to choose between risks. Rational decision-making requires, therefore, a clear and quantitative way of expressing risk so that it can be properly weighed, along with all other costs and benefits, in the decision process.

According to Aven (2012: 1647) risk assessment and management are today in many respects acknowledged as scientific disciplines per se. There is also an enormous drive and enthusiasm to implement risk management principles and methods in organizations, and international standards such as COSO (2004) provide guidance on the way to proceed. Spira and Page (2003: 642) describe that the historical progression of the notion of risk and its management can be traced back to the pre-modern era when risk related to natural events which were beyond human agency. The seventeenth century development of rationalism suggested that both the social and natural worlds could be subjected to scientific exploration. Risk became associated with unanticipated outcomes of human action, rather than simply the result of fate or “acts of God”. As risks become measurable and quantifiable, avoidance and protection strategies are possible.

² Infusion is seen as a multidimensional concept of *extended use*, which means using most -if not all- of the system features to complete tasks and *integrative use*, which means using the system to establish, enhance or reinforce linkages among tasks, and whereas *emergent use* is defined as using the system in an innovative manner to support tasks (Ng and Kim, 2009: 3).

Drennan, McConnel and Stark (2015: 8) point out two differences in terms of risk management in relation to the public-private distinction. The first difference rests in the fundamental objective: public sector organizations are service providers and not profit seekers. Therefore many public sector organizations never have to worry about bankruptcy and liquidation. Changes in government however, reflect public attitudes about public service funding and these can pose real threats to many public organizations. A second key difference relates to the risk management process: decreasing levels of public tolerance of risk, allied to an increasing “claims culture” causes a risk-averse approach to managing risks. According to Barrett (2002: 17) management of risk in the public sector involves making decisions that accord with statutory requirements and are consistent with public service values and ethics. This means that more, rather than less, attention should be devoted to ensuring that the best decision is made. This will require placing emphasis on making ‘right’ rather than ‘quick’ decisions.

Mirroring the private sector, the public sector now commonly sees risk management as an important dimension of good governance and as an aid in the achievement of organizational objectives (Woods, 2009: 69). Paape and Speklé (2012: 541) argued that that public sector organizations may experience unique problems in Enterprise Risk Management (ERM) implementation, because of the complex political environment in which they operate, and because of the dominant culture and management style of these organizations. Their data did not corroborate this expectation, and apparently, there are no differences in the extent of ERM implementation between the public and the private sector. However, on average, public sector organizations report lower ERM effectiveness than private sector organizations (Paape and Speklé, 2012: 559).

In the recent financial crisis, weaknesses in risk management practices became painfully visible and companies are currently under significant pressure to strengthen their risk management systems. This pressure is intensified by regulators and standard setters promulgating new risk management rules and requirements (Paape and Speklé, 2012: 533). Therefore, many firms have implemented systems and processes to support a coordinated and integrated company-wide approach to the identification, assessment, and management of risk. Such processes and systems should help to ensure that the total portfolio of risks facing the organization remain within acceptable limits. Because we did not find any indication in the literature of a diminishing effect of risk analysis we only expect a positive impact on financial and material resources management. Unlike the other elements of hard controls, risk analysis can never be too much. This leads us to formulate the following hypothesis regarding the hard control risk analysis:

H 6.5: *In the Dutch Defence organization risk analysis impacts positively on financial and material resources management.*

6.2 Hypotheses soft controls

Informal, soft controls play a role in getting and keeping the organization and its employees on track, i.e. in making them do what the organization wants them to be doing. In general, informal practices and institutional arrangements within the organization, often through so-called personnel, behavioural and cultural controls, are deemed to have a significant impact on the organizations' and employees' achievements (e.g. Abernethy and Brownell, 1997; Merchant and Van der Stede, 2012). This impact is expected to go beyond the more traditional and formal controls. As such, they are seen as complements or even as substitutes of those formal, hard controls (Zenger et al., 2002: 285-286). But that insight is too general and broad; we need to specify and elaborate the idea of soft controls. That is possible thanks to recent developments in research concerning employee behaviour. In this research stream, Kaptein (2008; 2011a) distinguished and tested empirically seven dimensions of soft controls that seem relevant in the context of financial and material resources management: *clarity, congruency, feasibility, supportability, transparency, discussability and sanctionability*.

6.2.1 Clarity

Clarity refers to the organization making clear to employees what is expected of them in ethical terms. According to Kaptein (2008: 924) clarity refers to the normative expectations in the organization regarding the conduct of employees. Are the ethical standards clear, comprehensive and understandable? Is there a guiding frame of reference? If so, do the employees know what to do in displaying the behaviour that suits the organization best? According to Kaptein (2017: 4) this is related to rational-bureaucratic control theory, which means that employees adopt counterproductive behaviours when they lack a clear understanding of what is expected of them (Bacharach, Bamberger, & Sonnenstuhl, 2002: 637).

A strong sense of organizational mission appears to be one of the key factors motivating workers and explaining organizational effectiveness (Grindle, 1997: 491). When norms and standards, and associated processes are clear, it is possible for workers to understand how they can assist in reaching the goals. This can be illustrated by a case study of Benetton (Borgerson, Schroeder, Escudero Magnusson and Magnusson, 2009: 220) that showed that documented ethical values and coherent visual and corporate identities are not enough. Benetton failed to use its socially responsible visual identity to inform and inspire its organizational identity via retail managers and (contract) employees.

According to Kaptein (2011a: 847) the business setting confronts employees with ethical issues that differ from those encountered in other social settings. Consequently, general moral intuitions may not suffice to distinguish ethical from unethical behaviour. It is therefore important that an organization does not leave managers and employees to rely on their moral intuition and good judgment alone, but to create a culture in which the distinction between ethical and unethical behaviour is clear. Kaptein (1998, 2011a) posits that the more employees are left to their own discretion and moral intuition without a

guiding organizational frame of reference, the higher the risk of unethical conduct. This corresponds with the findings of for example Tyler and Blader (2005: 1145) who see vagueness and ambiguity of moral expectations as one of the main sources of unethical conduct within organizations. It should be noted that these authors also emphasize that such clarity should align with employees own values. Formulated in a positive way, Posner (2010: 540) found in a study of 711 managers that clarity around organizational values pay dividends for both individuals and their organizations. Such clarity results in stronger bonds for managers with their organizations and more positive affective feelings about their work and impact.

However, Kaptein (2011a: 858) found that clarity of ethical standards was not significantly related to observed unethical behaviour. According to Kaptein (2011a) this was caused by the method used in this study: the less clear the expected behaviour, the less violations are detected. Another reason might be that clarity of ethical standards belongs to a reinforcement and compliance approach, whereas Tyler and Blader (2005: 1153) argue that ethical behaviour is enhanced by alignment of ethical standards with employees' own values and self-regulation. Additionally, employees of the Dutch Defence organization have taken an oath and there is also a Code of Conduct (Ministry of Defence, 2007)³. We presume that employees of the Dutch Defence organization know or ought to know what is expected from them when it comes to careful financial and material resources management. Therefore we expect that (a lack of) clarity is not the reason why there are problems in careful financial or material resources management in one unit and not in the other unit. This leads us to formulate the following hypothesis:

H 6.6: *In the Dutch Defence organization clarity has no significant impact on financial and material resources management.*

6.2.2 Congruency

Congruency concerns the alignment between the expectations in the organization and concrete management behaviour. This reinforces the message to employees to comply with these expectations (Kaptein, 2008: 925). Therefore the aspect of leadership and managerial role modelling is important. Brown, Treviño and Harrison (2005: 120) define ethical leadership as “the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making”. Leadership displaying consistency between expectations in the organization and concrete management behaviour, is likely to have a large effect on what the organization wants to achieve in terms of effective and proper employee behaviour and organizational results (e.g. Yukl, 2012; Kaptein, 2011a). Managerial

³ The Code of Conduct of the Dutch Defense organization (2007) contains five themes: “I am part of a professional organization; I am a member of a team with a common task; I am aware of my responsibility (including careful use of resources); I am honest and treat everyone with respect; I care for a safe working environment”.

and supervisor conduct serves as an example of proper employee behaviour or it acts as a deterrent of inappropriate behaviour. According to Brown and Treviño (2006: 597) ethical leaders are likely sources of guidance because their attractiveness and credibility as role models draw attention to their modelled behaviour. Power and status are two characteristics of models that enhance their attractiveness (Bandura, 1986: 238). But attractiveness involves much more than authority and status. Role models who demonstrate care and concern and treat others fairly are attractive to followers and garner positive attention. Credibility also enhances model effectiveness. Ethical leaders are credible because they are trustworthy and practice what they preach. As Bandura (1986: 344) noted, “if models do not abide by what they preach, why should others do so?”

Ruiz-Palomino and Martínez-Cañas (2011: 661) found evidence that the ethical behaviour of employees in the banking and insurance sector of Spain was associated with the role modelling of their supervisor. However this leader influence should not be viewed in isolation from the moral ideology of followers. Sims and Brinkmann (2002: 327) illustrate with the bond trading scandal at Salomon Brothers that leaders shape and reinforce an ethical or unethical climate by what they pay attention to, how they react to crises, how they behave, how they allocate rewards and how they hire and fire individuals.

With respect to defence organizations, Schaubroeck et al. (2012: 1070) have demonstrated these effects across hierarchical levels in an empirical study among 2,572 U.S. Army soldiers in Iraq. First, they found that ethical leaders embed their expectations into the ethical culture that is shared and understood by members of their own units. Through this mechanism, ethical leaders indirectly influence their immediate followers’ cognitions (e.g., moral efficacy) and behaviours (e.g., transgressions). Second, ethical culture cascades across hierarchical levels to a substantial extent. They found that ethical leadership is positively related to ethical culture at lower levels. Third, they found that leaders who exhibit a high level of ethical leadership may facilitate the influence of subordinate leaders’ ethical leadership on their followers.

According to Sekerka, Bagozzi and Charnigo (2009: 567) the military is a highly regulated organization with an emphasis on control to affect ethical behaviour, it is characterized by a prevention orientation that is designed to curtail unethical practices. But military managers, or officers, are also trained to assume a professional role that incorporates moral courage as a part of their job, providing them with the mental strength to do what is right, even in the face of personal or professional adversity (derived from U.S. Navy Core Values). Consistent with the findings in the organizational behaviour and psychology literature that the military may instill a stronger sense of ethics, Benmelech and Frydman (2015: 58) found that CEOs with military experience are significantly less likely to be involved in corporate fraudulent activity compared to CEOs who have not served in the military. Taking everything together, this leads us to formulate the following hypothesis:

H 6.7: *In the Dutch Defence organization congruency impacts positively on financial and material resources management.*

6.2.3 Feasibility

Feasibility refers to the extent to which the organization creates conditions which enables employees to comply with normative expectations (Kaptein, 2008: 925). It is important that organizations provide sufficient time, budgets, equipment, information, and authority to management and employees to fulfil their responsibilities (Kaptein, 1998: 74). Merchant and Van der Stede (2012: 88) add that personnel controls help ensure that each employee is able to do a good job. This may be particularly true if these come along with the resources (e.g. information and time) and the capabilities (work experience, intelligence and skills through education and training) that are needed to do the job. If these conditions are fulfilled in a satisfactory manner, it will be possible for employees to conduct their task properly without intensive steering from management and supervisors. If employees have little or no scope to realize their tasks and responsibilities, the risk of unethical conduct increases (Kaptein, 2008: 925).

For example, as Treviño (1986: 614) argues, employees who have sufficient time to carry out their responsibilities are more inclined to behave ethically than those who are under great time pressure. Persons who are under great time pressure are so engrossed in completing the assigned task that they pay little attention to the needs of others. Another angle of feasibility is the achievability of goals. Over 40 years of research on the effects of goal setting has demonstrated that high goals can increase performance by motivating people, directing their attention to a target, and increasing their persistence (Locke & Latham, 2002: 706-707).

However, for example research of Schweitzer, Ordóñez, & Douma (2004: 422) has introduced a dark side of goal setting by linking high performance goals to unethical behaviour. They found that people with unmet goals were more likely to engage in unethical behaviour than people attempting to do their best. We also found that the relationship between goal setting and unethical behaviour was particularly strong when people fell just short of reaching

their goals. The findings of Welsh and Ordóñez (2014: 86) suggest that consecutive high goals can diminish self-regulatory resources and increase unethical behaviour. Appelbaum, Iaconi and Matousek (2007: 592) identify another reliable predictor of workplace deviance, situation-based behaviour. They propose that certain conditions of the organizational environment predispose employees to deviance. Organizational factors that may contribute to employee deviance include “job stressors, organizational frustration, lack of control over the work environment, weak sanctions for rule violations and organizational changes such as downsizing” (Henle, 2005: 248).

Next to that, in the military –which is the focus of our study- there is a high value placed on readiness, mission accomplishment, “zero-defect” operations and having a “can-do” approach (Sekerka et al., 2009: 567). One is trained to work under difficult circumstances, in which certainly not always all facilitating conditions have been met. Military men and women are trained to act in accordance with what they have been taught, no matter the conditions and situations at hand. This implies that -given the high degree of willingness to

complete the job- there is no need for an intense use of the soft control feasibility. This leads us to formulate the following hypothesis:

H 6.8: *In the Dutch Defence organization feasibility has no significant impact on financial and material resources management.*

6.2.4 Supportability

Supportability refers to the individual's identification with, involvement in and commitment to the normative expectations of the organization and the extent to which the organization stimulates this (Kaptein, 2008: 926). Perceived organizational support represents employee beliefs about the extent to which the organization values their contributions and cares about their well-being (Eisenberger, Huntington, Hutchison and Sowa, 1986: 501). Meyer, Stanley, Herscovitch and Topolnytsky (2002: 38-39) found that perceived organizational support has the strongest correlation with affective commitment. This finding is consistent with the findings of Rhoades and Eisenberger (2002: 703) on the antecedents and consequences of perceived organizational support. They found a strong relationship between three antecedents and perceived organizational support: fair treatment⁴; supervisor support⁵; and organizational reward and job conditions⁶. Commitment is thought to be desirable because a culture characterized by demotivation, mistrust and dissatisfaction can be a breeding ground for unwanted behaviour (e.g. Kaptein, 2011a: 849). Tyler and Blader (2005: 1145) found that when employees are encouraged to identify with the values of the organization they are intrinsically motivated to comply with the standards of the organization. Employee conduct is even better guided by intrinsically oriented self-regulatory mechanisms than by command-and-control steering.

Wright (2007: 60) found that goal theory provides a strong theoretical foundation for understanding the separate but related contributions of task and mission characteristics on the work motivation and performance of professional employees in the public sector. Public employees are more motivated to perform their work when they have clearly understood and challenging tasks that they feel are important and achievable. The intrinsic value that employees see in the mission of their organization was found to influence their work motivation by increasing the importance they placed on their own work. As expected by goal theorists, the availability of extrinsic rewards contingent on performance was also found to have a significant influence on the degree of importance employees placed on their jobs. This influence, however, was less than that exhibited by the intrinsic value afforded by the organization's mission.

4 Fair treatment is often described as procedural justice which concerns the fairness of the ways used to determine the distribution of resources between employees (e.g. Greenberg, 1990).

5 Supervisor support is the degree to which supervisors value the contributions and care about the well-being of their employees (e.g. Kottke and Sharafinski, 1988).

6 Human resources practices like praise, pay increases, promotion and participation in decision making that show appreciation and recognition of employee contributions (Shore and Shore, 1995: 150).

The notion that service in the military is associated with a value system that promotes integrity and ethical behaviour has found some support in academic research. Franke (2001: 108) for example, compares the value orientation and attitudes of civilian undergraduate students and those of cadets in the United States Military Academy (USMA) at West Point. Significantly more cadets than students agreed that “honesty is the best policy in all cases” (81% vs. 68%) and that “one should take action only when one is sure that it is morally right” (64% vs. 51%). Consistent with these results, students appeared significantly more self-interested (ego-involved) than cadets. While less than one quarter of cadets (23%) believed that “it is hard to get ahead without cutting corners here and there,” more than half of students (53%) agreed with this statement. However, these results do not necessarily point to a causal effect of service in the military on value orientation since they are subject to a selection concern in which individuals with a particular value system may self-select to serve in the military. This leads us to formulate the following hypothesis:

H 6.9: *In the Dutch Defence organization supportability impacts positively on financial and material resources management.*

6.2.5 Transparency

Transparency or visibility is defined as the degree to which employee conduct and its consequences are perceptible to those who can act upon it, that is colleagues, supervisor, subordinates, and the employee(s) concerned (Kaptein, 2008: 926). This is important because employees can only be held responsible if they know, or could have known, the consequences of their actions and behaviour. According to Bovens (1998: 125) the chance that one might be called to account for one’s individual contribution to the illicit or morally reprehensible conduct of an organization after the event (the so called *passive* responsibility) can exert a strong positive influence on the conduct of individual functionaries beforehand (the so called *active* responsibility). If they are unaware of (possible) negative consequences, they will experience no urgency to reflect, account for and alter their conduct. In organizations with a high level of transparency employees will succeed in modifying or correcting their behaviour of that of their co-workers, supervisors or subordinates (Kaptein, 1998: 103). Conversely, low transparency diminishes the control environment, which widens the scope for unethical conduct and in this study, careless behaviour towards financial and material resources management (Kaptein, 2008: 926).

Related to transparency is the question if and when people report others’ ethical misconduct. This question is addressed by research on organizational whistle-blowing which refers to the disclosure by organizational members (former or current) of illegal, immoral or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action (Near & Miceli, 1985: 4). The literature on whistle-blowing has identified individual (i.e. pertaining to the whistle-blower, complaint recipient and wrongdoer) and situational factors (i.e. organizational and wrongdoing variables) that influence such reactions (Near & Miceli, 1995: 681). In this study especially the organizational characteristics

of appropriateness of whistle-blowing, organizational climate, organizational structure and power, are of interest. For example, people are more likely to report wrongdoing when the organizational climate discourages wrongdoing and encourages whistle-blowing (Near & Miceli, 1995: 700) or when the organization is perceived to be responsive to change processes in general, and particularly to complaints (Near & Miceli, 1995: 701). In addition, Greenberger, Miceli and Cohen (1987: 533-534) have suggested that whistle-blowing is less likely when the wrongdoing is ambiguous and when the nature of the task requires the mutual assistance of members. Under such circumstances a close working relationship and a high level of communication among members may be necessary.

A study of Near, Rehg, Van Scotter and Miceli (2004: 230) among employees of a large military base in the USA revealed that the type of wrongdoing is of significant influence on the whistle-blowing process. Employees who observed perceived wrongdoing involving mismanagement, sexual harassment or unspecified legal violations were significantly more likely to report it than were employees who observed stealing, waste, safety problems or discrimination. The reason for not reporting wrong-doing given most often, regardless of the type of wrongdoing, was “nothing could be done”. This can be explained by an interesting phenomenon which relates to how and when transparency is not effective: the so-called “slippery-slope effect” of Gino and Bazerman (2009: 717). They found in their studies that when the unethical behaviour of others develops gradually, over time, instead of occurring abruptly, people are more likely to accept this behaviour⁷. In line with these research findings Kaptein (2011a: 858) found that transparency is not significantly related to unethical behaviour. This leads us to formulate the following hypothesis:

H 6.10: *In the Dutch Defence organization transparency has no significant impact on financial and material resources management.*

6.2.6 Discussability

Discussability relates to the opportunities employees see to raise and discuss current practices in the organization (Kaptein, 2008: 926). It refers to the idea that if employees experience an atmosphere to be open to discussion they are more likely to show proper conduct and prevent mishaps and inappropriate behaviour. On the other hand, according to Kaptein (2011b: 519) in organizations with a low level of discussability, where “a code of silence”

⁷ Gino and Bazerman (2009: 717) relate to the parable of the “boiled frog” (Senge, 1990: 22) for how implicit processes lead to unethical behaviour in organizations: if you throw a frog into boiling water, it will quickly jump out. But if you put a frog in a pan of warm water and raise the temperature very slowly, the gradual warming will make the frog doze happily. The frog will eventually cook to death due to its failure to sense the gradual increase in water temperature. The message of this tale is that, because its environment changes so gradually, the frog is never stimulated to take bold action to save its life.

(Rothwell and Baldwin, 2007)⁸ prevails, employees will think that dissidence and speaking up is undesirable.

An openness to discuss dilemma's for employees starts with the way the managers communicate. Findings of Fritz, O'Neill, Popp, Williams and Arnett (2013: 260) suggest that alignment of supervisory communication and behaviour with organizational expectations for employee conduct, a form of behavioural integrity (Simons, 2002: 18), is significantly related to important organizational outcomes. The extent to which managers "walk the walk" and "talk the talk" makes a difference in organizational life. Research of Treviño, Hartman and Brown (2000: 135) shows that many executives are uncomfortable talking about ethics "I think the way you do it (ethical leadership) is to demonstrate it in action". However, moral managers need to talk about ethics and values, in a way that explains the values that guide important decisions and actions. If people do not hear about ethics and values from the top, it is not clear to employees that ethics and values are important.

Another aspect of communication is addressed by Liedtka (1996: 191). According to her, one of the features of a 'caring organization' is that communication would be characterized by a constructive approach to learning. In line with Senge (1990), learning organizations are characterized by an ability to maintain an open dialogue among members, that seeks first to understand, rather than evaluate, the perspectives of each. This kind of communication thus should reflect a balance between 'didactic' and 'real' talk. In 'didactic' talk each participant may report experience, but there is no attempt among participants to join together to arrive at some new understanding. 'Really talking' requires careful listening; it implies a mutually shared agreement that together you are creating the optimum setting so that half-baked ideas can grow. 'Real talk' reaches deep into the experience of each participant; it also draws on the analytical abilities of each (Belenky, Clichy, Golberger and Tarule, 1986: 144). Particularly if in an organization both cooperative talk, stressing shared interests and identities in the organization, and assertive talk, enabling the expression of differences, are well accepted practices, this will have a positive impact on the organization's achievements and results (Hardy, Lawrence and Grant, 2005: 69-71). Hartmann and Slapničar (2009: 730) found that feedback quality is the crucial variable in the formality-trust relationship. They follow the reasoning of Coletti, Sedatole and Towry (2005) that receiving high quality feedback, based on formal evaluations, positively affects trust as subordinates will perceive this as the superiors' desire to help subordinates improve their performance. Likewise Treviño, Weaver and Reynolds (2006: 967) found that linguistic practices within organizations influence ethical behaviour. Empirical data gathered across four large companies by Treviño, Gibson, Weaver and Toffler (1999) showed that the degree to which individuals openly talk about ethics in an organization is a good predictor of ethical conduct in that organization.

⁸ According to Rothwell and Baldwin (2007: 344) most literature suggests that the code of silence is stronger in police climates than in civilian climates. Traditionally depicted as working in a culture that involves dangerous missions, a hostile public, and excessive scrutiny by administrators, police officers possess an unparalleled need for solidarity and personal protection. Silence is an instrument for "internal cohesion" that allows for that solidarity and protection. Moreover, the need for loyalty and solidarity is exacerbated by situational uncertainty and unpredictable encounters sometimes involving violence and deadly force.

Similarly, organizational situations characterized by “moral muteness” appear to support ethically problematic behaviour (Bird, 1996). This relationship likely has much to do with the impact of language on the formation and content of cognitive schemas and thus on moral awareness and decision making.

Discussability implies possibilities for the management model of inclusion (Feldman and Khademian, 2000: 155) where authority over both process and result is decentralized. Managers focus on building the capacity of their employees and the public to participate in the policy process. They practice empowerment and encourage teamwork and continuous improvement as means to build this capacity. They exert authority and control through the way they implement participation. All in all, this leads us to formulate the following hypothesis:

H 6.11: *In the Dutch Defence organization discussability impacts positively on financial and material resources management.*

6.2.7 Sanctionability

Sanctionability, the last soft control, refers to the dynamics of punishment, condoning and rewards and their impact on employee behaviour (Kaptein, 2008: 927). Financial rewarding is positively related to performance quantity (Jenkins, Mitra, Gupta and Shaw, 1998: 783) and financial rewarding for groups as well as individuals, will help in encouraging knowledge sharing (Bartol and Srivastava, 2002: 73). According to the review of 128 studies examining the effects of extrinsic rewards on intrinsic motivation, Deci, Koestner and Ryan (1999: 653) found that tangible rewards do not undermine intrinsic motivation when they are not expected. And verbal rewards, labeled as positive feedback in the motivation theory, have a significant positive impact on intrinsic motivation. Besides that, there is considerable evidence from studies of token-economy programs (e.g. O’Leary and Drabman, 1971) that incentives may be used effectively to increase interest in certain classes of activities. So if intrinsic motivation is initially low then incentives can be used for producing involvement (Lepper, Greene and Nisbett, 1973: 136).

However, rewarding has also been associated with decreased intrinsic motivation, especially expected tangible rewards if the intrinsic motivation was high in the first place (Deci et al., 1999: 653). Eisenberger and Shanock (2003: 121) found that rewards for novel performance increase intrinsic motivation and creativity, whereas rewards for conventional performance decrease intrinsic motivation and creativity. Creative motivational orientation, enhanced by rewards, strongly affects innovative performance. Jenkins et al. (1998: 777) have concluded that rewarding has no influence on performance in terms of quality of output. Although a reward system may reinforce the right values and behaviour, employees have also experienced monetary rewards as a source of unfairness (Mickel and Barron, 2008: 336).

Public sector employees have repeatedly been found to place a lower value on financial rewards and higher value on helping others than their private sector counterparts (Boyne, 2002: 102;

Wright, 2001: 566 and 2007: 54). A review of research on public sector performance-related pay (Perry, Engbers and Jun, 2009: 43) found that performance-related pay consistently fails to deliver on its promise. Only when the goals are clear, compensation is adequate and a significant amount of support for the merit plan exists, performance related pay results in positive outcomes. Hou (2011: 372-373) also raised questions whether the “publicness” of the government sector allows for the same array of incentives that are used in the private sector and whether the incentives, work as effectively as in the private sector. When examining the behaviour of government employees as rational individuals under the principal-agent model, incentives become an issue when goal inconsistency and information asymmetry coincide. If the principal is perfectly clear about the agent’s behaviour, the incentive can be adequately provided by the principal. When the principal can observe only the output of the agent but is not sure about his effort and the goals of the two sides differ, then incentives become a complicated issue. Incentives’ impact may consequentially be equivocal or effective under specific conditions. The findings of Brewer and Walker (2013: 127-128) show that pay for performance, as represented by the notion of rewarding good managers with higher pay, does not produce the anticipated benefits. It is even counterproductive in some instances. So perhaps a more difficult problem for public organizations is how to encourage and reward high performance. The policy implication here is that persistent efforts to implement pay-for-performance systems will likely continue to fail in public organizations—at least in terms of improving their performance.

Hence, with respect to punishments and rewards, a similar effect like the impact of some hard controls may be the case. Kaptein (2017: 8) warns for the possibility of excess regarding sanctionability, labelled as oppressiveness. This would apply when an organization overreacts in response to ethical or unethical behaviour. In such situations, punishment will be too severe, and it could even be brutal or cruel. Rewards will be disproportionate and excessive: employees who display ethical behaviour will be praised to high heavens. A moderate intensity level of sanctionability is expected to be more effective than a low or high intensity level (Arvey and Ivancevich, 1980: 127). This proposition has been elaborated and supported in tens of studies in the field of game-theory and experimental social science (see: Nowak, 2011). This leads us to formulate the following hypothesis:

H_{6.12}: *In the Dutch Defence organization sanctionability has a curvilinear (inverse U-shaped) impact on financial and material resources management.*

6.3 Findings

6.3.1 Pearson correlations hard and soft controls

As Table 6-1 and Table 6-2 show, the dependent and independent variables – for respectively financial and material resources management – demonstrate logical, significant inter-correlations. Respondents assess financial management slightly lower (average 4.47) than material resources management (average 4.86). The five hard and seven soft controls correlate

significantly high. The size of the strongest association at .64 (at $p < .01$) does not cause reason for concern regarding the independence of the constructs because the correlation does not exceed the criterion of .8 for bivariate collinearity (Field, 2009: 648) or the criterion of .7 suggested by Tabachnick and Fidell (1996: 86).

Table 6-1 shows that the hard control in financial management with the highest score is *procedures and rules* with a mean of 3.95. This implies that respondents perceive the design, existence and operating effectiveness of the procedures and rules in their units regarding financial management the most positive of all hard controls⁹. The hard control with the lowest mean is *risk analysis* (2.91). Regarding the soft controls we see that in financial management the respondents recognize to a large degree *supportability*, *discussability* and *congruency* with means that are higher than 4.60. The soft control with the lowest mean is *feasibility* (3.88).

Table 6-2 shows that the hard control in material resources management with the highest score is also *procedures and rules* with a mean of 4.38. The hard control with the lowest mean is again *risk analysis* (3.07). Regarding the soft controls we see that in material resources management the respondents recognize to a large degree *supportability*, *discussability* and *clarity* with means ≥ 4.55 . The soft control with the lowest mean is *sanctionability* (3.85).

■
9 As mentioned in Chapter 3, the specific formulation of the hard and soft controls can be found in Appendix III.

	Range	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Financial management	0-6	4.47	.79															
2	Gender	0-1	.90	.30	.10														
3	Age	1-6	3.93	.93	.11	.22**													
4	Military culture	1-13	4.76	3.39	-.06	.20**	-.25**												
5	Segregation of duties	0-6	3.87	1.90	.25**	.07	.33**	-.35**											
6	Internal auditing	0-6	3.75	1.70	.29**	.03	.18*	-.24**	.47**										
7	Procedures and rules	0-6	3.95	1.52	.26**	.08	.15*	-.29**	.50**	.57**									
8	Recording	0-6	3.74	1.88	.26**	-.11	.10	-.30**	.46**	.37**	.54**								
9	Risk analysis	0-6	2.91	2.02	.24**	.07	.21**	-.28**	.50**	.45**	.57**	.54**							
10	Clarity	1-6	4.32	1.07	.37**	.03	.22**	-.20**	.42**	.38**	.42**	.37**	.46**						
11	Congruency	1-6	4.60	.70	.46**	.09	.10	-.05	.18*	.23**	.11	.20**	.26**	.46**					
12	Feasibility	1-6	3.88	1.08	.30**	-.06	.10	-.34**	.36**	.27**	.41**	.45**	.40**	.55**	.33**				
13	Supportability	1-6	4.69	.62	.40**	-.08	.05	-.07	.14*	.30**	.26**	.28**	.23**	.31**	.57**	.31**			
14	Transparency	1-6	4.50	.71	.41**	-.07	.08	-.19**	.28**	.31**	.26**	.29**	.34**	.47**	.37**	.45**			
15	Discussability	1-6	4.64	.77	.45**	-.04	.07	-.13	.21**	.28**	.31**	.27**	.42**	.52**	.43**	.53**	.53**		
16	Sanctionability	1-6	4.04	.91	.31**	.07	.02	.10	.03	.13	.03	.08	-.01	.19**	.38**	.15*	.37**	.44**	.42**

* p < .05; ** p < .01

Table 6-1 Pearson correlations and descriptive statistics financial management

	Range	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	Material resources management	0-6	4.86	.77																
2	Gender	0-1	.96	.20	.01															
3	Age	1-6	3.84	.94	.02	.12														
4	Military culture	1-13	5.65	3.18	.12	.14	-.30**													
5	Segregation of duties	0-6	3.41	1.94	.15	-.05	.11	-.19*												
6	Internal auditing	0-6	4.00	1.56	.10	.06	.17*	-.25**	.48**											
7	Procedures and rules	0-6	4.38	1.15	.16*	.06	.03	-.08	.26**	.53**										
8	Recording	0-6	3.97	1.89	.09	.01	.09	-.09	.40**	.45**	.27**									
9	Risk analysis	0-6	3.07	1.82	.08	-.00	.21**	-.29**	.41**	.44**	.28**	.28**								
10	Clarity	1-6	4.87	.90	.17*	-.09	.09	-.08	.20**	.23**	.28**	.28**	.07							
11	Congruency	1-6	4.43	.89	.31**	-.10	-.04	-.08	.17*	.12	.07	.13	.12	.26**						
12	Feasibility	1-6	4.22	.96	.12	-.08	.18*	-.09	.18*	.11	.09	.20*	.10	.31**	.25**					
13	Supportability	1-6	4.57	.67	.31**	-.08	-.12	-.05	.20*	.11	.16*	.05	.13	.27**	.60**	.27**				
14	Transparency	1-6	4.40	.74	.24**	-.01	-.01	-.04	.35**	.18*	.20*	.09	.23**	.28**	.56**	.25**	.62**			
15	Discussability	1-6	4.55	.83	.35**	-.08	-.13	.07	.16*	.13	.12	.12	.11	.31**	.55**	.27**	.64**	.61**		
16	Sanctionability	1-6	3.85	.93	.19*	-.06	-.15	.08	.18*	.03	.04	.03	.15	.10	.54**	.15	.57**	.47**	.50**	

* p < .05; ** p < .01

Table 6-2 Pearson correlations and descriptive statistics material resources management

6.3.2 Linear regression analyses hard and soft controls

We analysed the data, applying a number of multiple regression analyses; we used listwise deletion to deal with missing values (Field, 2009). Model 1 contains the control variables; Model 2 contains the control variables and military culture; in Model 3 the five hard controls and in Model 4 the seven soft controls are added. Table 6-3 illustrates the findings of the regression analyses regarding financial management and material resources management respectively.

	Financial management (N = 207)				Material resources management (N = 170)			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Constant	3.97***	4.06***	3.34***	.60	4.78***	4.55***	3.93***	2.13***
Gender	.08	.10	.09	.09	.03	-.02	-.02	.02
Age	.09	.07	.03	.01	.01	.06	.05	.10
Military culture		-.06	.06	.05		.14⁺	.18*	.18*
HC Segregation of duties			.07	.05			.13	.11
HC Internal auditing			.18*	.06			-.02	-.04
HC Procedures and rules			.03	.05			.14	.12
HC Recording			.16⁺	.06			.01	-.01
HC Risk analysis			.02	.05			.02	.02
SC Clarity				.08				.01
SC Congruency				.19*				.21*
SC Feasibility				.02				-.02
SC Supportability				.08				.15
SC Transparency				.11				-.09
SC Discussability				.14*				.20⁺
SC Sanctionability				.06				-.09
R ²	.02	.02	.13	.34	.00	.02	.07	.19
Adjusted R ²	.01	.01	.10	.28	-.02	-.00	.02	.11
F statistic	1.82	.60	5.10***	8.32***	.03	2.80*	1.67	3.47**
* p < .05; ** p < .01; *** p < .001. two-tailed test. + p < .10 (quasi significant)								

Table 6-3 Regression analyses hard and soft controls on resources management

Table 6-3 illustrates that none of the control variables impacts significantly on the assessment of financial and material resources management. In line with what we found in the previous chapter, in Table 6-3 is shown that military culture impacts positively on material resources management. If the military professional culture dominates in an organizational unit, the quality of the material resources management is significantly perceived to be better.

In the results of model 3 in Table 6-3 regarding the impact of the five hard controls we see that *internal auditing* and *recording* have a significant positive effect on financial management. This positive relation disappears, however, when the soft controls are inserted in model 4. The fact that the impact of the hard controls disappears when entering the soft controls into the equation, might be a sign of multicollinearity. To rule this out, we examined the Variance Inflation Factors (VIF) and tolerance levels of the data closer¹⁰. For all models the VIF values are well below 3, all tolerance statistics are well above .4 and the average VIF for all models are close to 1. Therefore we can safely conclude that there is no multicollinearity within the data. Contrary to financial management, regarding material resources management none of the five hard controls show a significant influence.

In the results of model 4 in Table 6-3 we find support for hypotheses 6.6, 6.8 and 6.10. As we expected, *clarity*, *feasibility* and *transparency* have no significant impact on careful financial and material resources management in the Dutch Defence organization. We expected a positive impact of *supportability* (hypothesis 6.9) on financial and material resources management, but according to model 4 in Table 6-3 we did not find evidence to support that. The results of model 4 in Table 6-3 illustrate two significant positive correlations between the soft controls and financial and material resources management. The extent to which the respondents experience a high level of *congruency* and *discussability* in their units has a significant positive impact on financial and material resources management thereby supporting hypothesis 6.7 and 6.11.

However, regarding financial management this is not the final result regarding the interplay between the two forms of control, as the hard controls *internal auditing* and *recording* had a direct effect which disappeared after inserting the soft controls into the analysis. Tests to search for a mediation effect – hard controls impact on financial management through soft controls – proved to be successful (Baron and Kenny, 1986: 1176). Results of the Sobel test (1982)¹¹ suggest that the association between the hard controls *internal auditing* and *recording* and financial management is significantly mediated by the soft controls *congruency* and *discussability*. This means that only when managers or commanders show in their behaviour that careful financial management is important (*congruency*) and problems in managing the financial resources are discussed (*discussability*), the hard controls *internal auditing* and *recording* are effective in managing the financial resources.

10 Various recommendations for acceptable levels of VIF have been published in the literature. Perhaps most commonly, a value of 10 has been recommended as the maximum level of VIF (e.g. Kennedy, 1992: 183; Kutner, Nachtsheim, Neter & Li, 2005: 409). The VIF recommendation of 10 corresponds to the tolerance recommendation of .1 (i.e., $1 / .1 = 10$). Menard (1995: 66) states “a tolerance of less than .2 is cause for concern; a tolerance of less than .1 almost certainly indicates a serious collinearity problem. According to (Bowerman & O’Connell, 1990) if the average VIF is substantially greater than 1, the regression may be biased.

11 Calculation for the Sobel test was performed on an interactive calculation tool for mediation tests by K.J. Preacher (Vanderbilt University) G.J. Leonardelli (University of Toronto) <http://quantpsy.org/sobel/sobel.htm>

6.3.3 Curvilinear regression analyses hard and soft controls

The low impact of hard controls and some soft controls on financial and material resources management according to the linear regression analyses gives reason to investigate if these relations are curvilinear, which would be in accordance with a number of the hypotheses we formulated before (particularly with respect to hard controls). So this sub-paragraph delves deeper into the subscales of the hard and soft controls to determine whether there is an optimal intensity in using specific hard and soft controls. Following the hypotheses formulated in paragraph 6.1 and 6.2, we test for curvilinear relations by performing hierarchical regression analysis including the quadratic next to the linear function of the hard controls *segregation of duties, internal auditing, rules and procedures* and *recording* and the soft control *sanctionability* (Crawley, 2007: 436). The results are shown in Table 6-4.

	Financial management (N = 207)				Material resources management (N = 170)			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Constant	3.97***	4.06***	2.41***	.42	4.78***	4.55***	3.25***	1.86**
Gender	.08	.10	.06	.07	.01	-.02	-.04	-.00
Age	.09	.07	.04	.02	.02	.06	.01	.06
Military culture		-.06	.07	.06		.14⁺	.18*	.17*
HC Segregation of duties			.23*	.16			.47***	.37**
HC Segregation of duties_ quadratic			.18⁺	.12			.45**	.34*
HC Internal auditing			.04	-.02			-.05	-.06
HC Internal auditing_ quadratic			-.14	-.08			-.11	-.09
HC Procedures and rules			.33*	.17			.19⁺	.16
HC Procedures and rules_ quadratic			.32*	.14			.17	.13
HC Recording			.23⁺	.15			.05	-.04
HC Recording_ quadratic			.11	.12			-.00	-.09
HC Risk analysis			-.01	-.05			.01	-.00
SC Clarity				.06				.01
SC Congruency				.16⁺				.20*
SC Feasibility				.03				-.04
SC Supportability				.10				.12
SC Transparency				.09				-.11
SC Discussability				.11				.17
SC Sanctionability				.05				.00
SC Sanctionability_ quadratic				-.10				.13
R ²	.02	.02	.20	.36	.00	.02	.16	.25
Adjusted R ²	.01	.01	.15	.29	-.01	-.00	.10	.15
F statistic	1.82	.60	4.66***	6.08***	.03	2.80⁺	2.98**	2.28*
* p < .05; ** p < .01; *** p < .001, two-tailed test + p < .10 (quasi significant)								

Table 6-4 Curvilinear regression hard and soft controls on resources management

The results of the curvilinear regression analysis in Table 6-4 are mainly similar to the results of the linear regression analysis we discussed in the previous sub-paragraph. None of the control variables impact significantly on the assessment of financial and material resources management. Military culture impacts positively only on material resources management.

In the results of model 3 in Table 6-4 regarding the impact of the five hard controls we see that the linear and the curvilinear variable of *segregation of duties*, the linear and the curvilinear variable of *procedures and rules* and the linear variable of *recording* has a significant effect on financial management. These relations disappear however when the soft controls are inserted in model 4. Regarding material resources management we see that the linear function of *procedures and rules* shows a quasi-significant influence but this disappears when we enter the soft controls in the fourth model. The linear and the quadratic variable of *segregation of duties* show a significant influence on material resources management, even when soft controls are inserted into the analyses.

Regarding the soft controls almost the same results as in the linear regression are seen. Now there is only one significant positive correlations between the soft controls and financial and material resources management. The extent to which the respondents experience a high level of *congruency* in their units has a significant positive impact on financial and material resources management thereby supporting hypothesis 6.7. We could no longer find support for the positive impact of the soft control *discussability* (hypothesis 6.11) although the beta-scores are fairly high. We also could not find support for the curvilinear relation between *sanctionability* and resources management. This may be caused by the fact that *sanctionability* had a fairly low meanscore of 3.85 regarding material resources management and 4.04 regarding financial management. This relative low intensity may be preventing *sanctionability* being too much for the employees.

Including also the curvilinear variables into the regression models might lead to an imbalance between the number of independent variables and the sample size. Since a number of independent variables (the control variables *gender* and *age*, the hard control *risk analysis* and the soft controls *clarity*, *feasibility*, *supportability* and *transparency*) were not significant in the linear analyses, we reanalysed the models without it (following Katz-Navon et al., 2005: 1083). The results of these cleaned regression analyses are shown in Table 6-5.

	Financial management (N=208)			Material resources management (N=174)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant	4.53***	2.62***	.97*	4.72***	3.10***	2.01***
Military culture	-.06	.08	.06	.11	.17*	.15*
HC Segregation of duties		.25*	.18 ⁺		.49***	.35**
HC Segregation of duties_quadratic		.18 ⁺	.11		.46***	.35**
HC Internal auditing		.04	.00		-.05	-.06
HC Internal auditing_quadratic		-.14	-.07		-.10	-.09
HC Procedures and rules		.35*	.21 ⁺		.21 ⁺	.19 ⁺
HC Procedures and rules_quadratic		.32**	.15		.20 ⁺	.18
HC Recording		.22 ⁺	.15		.08	-.00
HC Recording_quadratic		.12	.13		.00	-.08
SC Congruency			.24**			.16 ⁺
SC Discussability			.16*			.19*
SC Sanctionability			.09			.05
SC Sanctionability_quadratic			-.10			.15 ⁺
R2	.00	.19	.35	.01	.17	.25
Adjusted R2	-.00	.15	.30	.01	.12	.19
F statistic	.75	5.71***	11.49***	2.00	3.85***	4.22**
* p < .05; ** p < .01; *** p < .001, two-tailed test ⁺ p < .10 (quasi significant)						

Table 6-5 Cleaned curvilinear regression hard and soft controls on resources management

The results of the cleaned curvilinear regression analysis in Table 6-5 show that military culture impacts positively only on material resources management.

In the results of model 2 in Table 6-5 regarding the impact of the four hard controls we see that the linear and the curvilinear variable of *segregation of duties*, the linear and the curvilinear variable of *procedures and rules* and the linear variable of *recording* have a significant effect on financial management. When the soft controls are inserted in model 3, only the linear variables of *segregation of duties* and of *procedures and rules* show a quasi-significant effect. Regarding material resources management we see that the linear and the curvilinear variable of *segregation of duties* show a significant influence and the linear and curvilinear function of *procedures and rules* show a quasi-significant influence. When we enter the soft controls in the third model, the linear and the quadratic variable of *segregation of duties* still show a significant influence on material resources management, while the quasi-significant influence of *procedures and rules* disappears.

Regarding the soft controls almost the same results as in the linear regression are seen. Again there are two significant positive correlations between the soft controls and financial and material resources management. The extent to which the respondents experience a high level of *congruency* and *discussability* in their units have a significant positive impact on financial and material resources management thereby supporting hypothesis 6.7 and 6.11. We also found a quasi-significant curvilinear influence of *sanctionability* and material resources management, thereby partially supporting hypothesis 6.12.

The low impact of hard controls and some soft controls on financial and material resources management according to the linear regression analyses led us to investigate if these relations are curvilinear instead. The above results indeed show curvilinear relationships between the hard control *segregation of duties* as well as, the soft control *sanctionability* and material resources management. The signs of the standardized Beta coefficients are positive however, the opposite from what we expected in the hypotheses. This gives reason to examine these curvilinear relationships to a greater detail.

6.3.4 Delving deeper into the curvilinear relationships

We expected curvilinear relations in the form of an inverse U-shape, meaning that a moderate intensity level of the hard control *segregation of duties* and the soft control *sanctionability* is expected to be more effective than a low or high intensity level. However, we found curvilinear relations in the opposite direction, forming a U-shape as can be seen in Figure 6-1 and 6-2. Apparently in the Dutch Defence organization, if *segregation of duties* and *sanctionability* are either low or high, the perceived quality of material resources management is higher than if these controls are moderately developed.

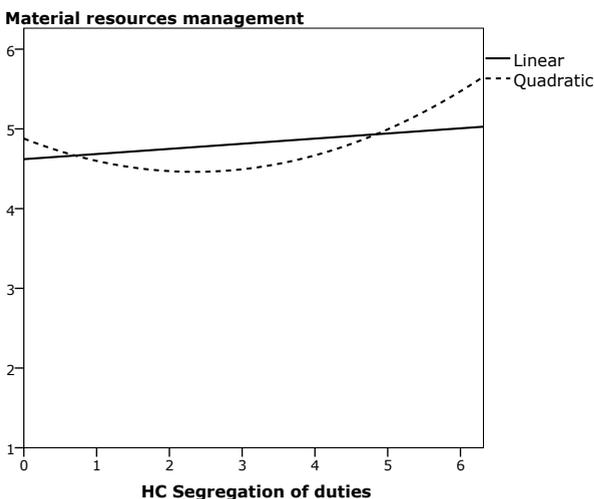


Figure 6-1 Curvilinear relation between segregation of duties and material resources management

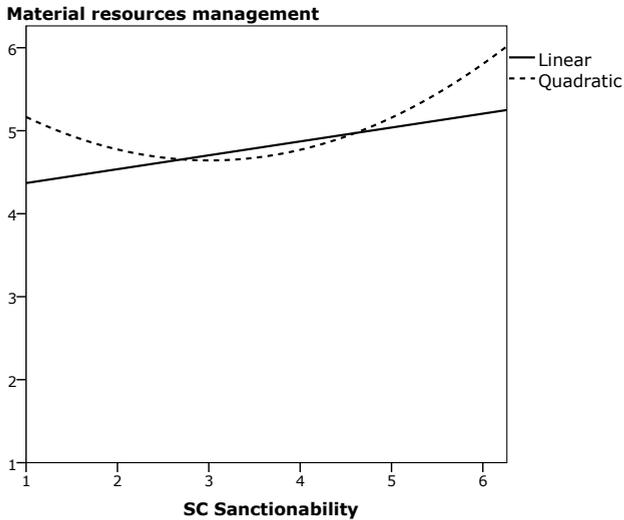


Figure 6-2 Curvilinear relation between sanctionability and material resources management

The left side of the U-shaped relation between segregation of duties and material resources management is in line with what Oldham and Cummings (1996: 610) argued. A low level of segregation of duties means that the jobs in general are complex and challenging, which renders individuals more likely to be excited about their work activities and interested in conducting these activities in the absence of external controls or constraints. By increasing bureaucratic dynamics these “rich” jobs turn into simpler ones with less responsibilities and autonomy for the individual workers. When individual employees feel a higher need for job autonomy this may have a negative effect on the management of the material resources because they feel less responsibility and no longer see the “bigger picture” (Morgeson et al., 2005). Besides that, bureaucratization increases the complexity of the internal organization. As seen in chapter 4, illustrated by the example of the combat boots in paragraph 4.1.2, *segregation of duties* may lead to a high degree of fragmentation and an overload of people involved. Even so much that the actual goal, careful management of material resources, is lost from sight. But, as Figure 6-1 displays, if the perceived level of segregation of duties increases further, the perceived quality of material resources management reaches a higher level again, suggesting that this manifestation of bureaucratic organizing indeed helps to improve the quality of material resources management. The right side of the revealed U-shaped curvilinear effects between segregation of duties and material resources management indicates that when respondents recognize the presence of segregation of duties to a large extent, they perceive the quality of material resources management better.

As can be seen in Figure 6-2, the left side of the U-shaped relation between *sanctionability* and material resources management is in line with the findings of Boyne (2002: 102) and Wright (2001: 566; 2007: 54) that public sector employees place a lower value on financial

rewards and higher value on helping others than their private sector counterparts. So even without rewarding and/or punishing, the employees of the Dutch Defence organization will be intrinsically motivated to manage the material resources in a proper way. Even more so, according to Deci et al. (1999: 653) using tangible rewards may lead to a decrease of this intrinsic motivation, which can be seen in Figure 6-2 as well. Although a reward system may reinforce the right values and behaviour, employees may experience monetary rewards as a source of unfairness (Mickel and Barron, 2008: 336). This is in line with the findings of Brewer and Walker (2013: 127-128) that in public organizations pay for performance does not produce the anticipated benefits, especially under conditions of goal consistency and information-asymmetry. However, as Figure 6-2 displays in the right side of the U-shaped curvilinear effect, if the perceived level of *sanctionability* increases further, the perceived quality of material resources management reaches a higher level again, suggesting that rewarding and/or punishing helps to improve the quality of material resources management. This may be explained by the findings of Eisenberger and Shanock (2003: 121) that rewards for novel performance increase motivation and creativity.

These curvilinear findings may be sector-specific, since the regression analyses showed that military culture plays a significant role in material resources management. The respondents may feel different about the circumstances and the kind of material resources that are at stake. Regarding material resources that are essential to the military task, such as vehicles, communication systems, weapons and ammunition, military employees may assess the corresponding controls (in this case the hard control *segregation of duties* and the soft control *sanctionability*), even if they are numerous, tight and severe, as good and effective. On the other hand, regarding materiel closely related to normal office circumstances such as computers, paper and pencils, employees may feel hindered by too much *segregation of duties* and too harsh *sanctionability*. We tried to find proof for this reasoning by performing an extra regression analysis on the interaction term of military culture and *segregation of duties* and *sanctionability*. This interaction variable proved not to be significant but we have to keep in mind that the variable of military culture in this study is only a proxy, a rough estimate for the difference between the 'hot' and the 'cold' side of the Dutch Defence organization. Also, specific analyses for military personnel only did not lead to conclusive findings. Further theory development and studies are needed to ascertain how these mechanisms are related to one another.

6.4 Subconclusion impact of specific hard and soft controls

This chapter aimed to investigate empirically the relationship between the organizations' formal control structure (hard controls), ethical culture (operationalised in soft controls) and specific organizational outcomes, namely financial and material resources management in the Dutch Defence organization. We wanted to ascertain which of the five hard controls, *segregation of duties*, *internal auditing*, *rules and procedures*, *recording* and *risk analysis* and which of the seven soft controls, *clarity*, *congruency*, *feasibility*, *supportability*, *transparency*, *discussability* and *sanctionability* are relevant and in what mixture and intensity it could reach the largest positive

impact. An overview of the hypotheses we tested and the results of the linear and curvilinear regressions are presented in Table 6-6.

		Hypothesis		Linear regression		Curvilinear regression	
		FM and MRM		FM	MRM	FM	MRM
Hard controls	Segregation of duties	H 6.1	±	o	o	o	±
	Internal auditing	H 6.2	±	o	o	o	o
	Procedures and rules	H 6.3	±	o	o	o	o
	Recording	H 6.4	±	o	o	o	o
	Risk analysis	H 6.5	+	o	o	n.a.	n.a.
Soft controls	Clarity	H 6.6	o	o	o	n.a.	n.a.
	Congruency	H 6.7	+	+	+	n.a.	n.a.
	Feasibility	H 6.8	o	o	o	n.a.	n.a.
	Supportability	H 6.9	+	o	o	n.a.	n.a.
	Transparency	H 6.10	o	o	o	n.a.	n.a.
	Discussability	H 6.11	+	+	+	n.a.	n.a.
	Sanctionability	H 6.12	±	o	o	o	±
+ = positive relation; o = no relation; ± = curvilinear relation; n.a. = non applicable, has not been tested conform formulation of the hypotheses.							

Table 6-6 Overview results linear and curvilinear regression

Hypothesis 6.7 and 6.11 regarding *congruency* and *discussability* can be fully confirmed. *Congruency* has a positive impact on financial as well as material resources management. As expected, when respondents perceive leadership displaying consistency between expectations in the organization and concrete management behaviour, they also perceive the quality of the management of the financial and material resources higher.

Discussability seems to have a positive impact on both kinds of resources management. Apparently when the respondents perceive the communication in their unit as a good balance between 'didactic' and 'real' talk creating opportunities to learn from mistakes, they also perceive the financial and material resources management to be more careful. Since there is a high correlation (larger than .5) between *congruency* and *discussability*, maybe the main task of the managers in the Dutch Defence organization regarding careful resources management should be creating conditions for sharing knowledge and encouraging people to discuss the problems they face so they can learn from their mistakes. This would be in line with Fritz et al. (2013: 252) who argue that supervisory communication, or verbal messages articulating expectations for appropriate conduct, should be in line with the supervisory behavioural modelling of those expectations.

We also found evidence to support hypotheses 6.6 regarding *clarity*, 6.8 regarding *feasibility* and 6.10 regarding *transparency*. As expected those three soft controls do not have a

significant influence on careful financial and material resource management. Apparently the standards are clear, comprehensive and understandable to the employees of the Dutch Defence organization. And it seems that the Dutch Defence organization provides sufficient time, budgets, equipment, information, and authority to their employees to fulfil their responsibilities or they are so committed to their task to accomplish it even if not all conditions are met. Regarding *transparency*, it may be that respondents do not understand that there is careless management of resources. Or they do realize, but they think that nothing can be changed about it.

We expected a positive impact of *supportability* (hypothesis 6.9) on financial and material resources management but we did not find evidence to support that.

At last, we found evidence to support hypothesis 6.12; *sanctionability* does have a curvilinear effect on material resources management. We expected a curvilinear relation in the form of an inverse U-shape, meaning that a moderate intensity level of the soft control *sanctionability* is expected to be more effective than a low or high intensity level. However, we found a curvilinear relation in the opposite direction, forming a U-shape. Apparently, the employees in the Dutch Defence organization do not need punishing or rewarding for careful resources management because they are intrinsically motivated. Using –especially tangible- rewards decreases this motivation with a negative effect on the material resources management. However, when there is a serious problem in managing the material resources carefully, *sanctionability* can be used in an addressing and/or disciplinary way. This is in line with the results of the qualitative analysis in Chapter 4: “Address people directly in regular performance evaluations if reports indicate failing practices” and “People should feel the pain when it is not good, for example by cutting the budget of the commander who makes a mess out of it.”

Regarding the impact of hard controls on financial and material resources management, we could not find evidence to support hypothesis 6.2 (curvilinear impact of *internal auditing*), hypothesis 6.4 (curvilinear impact of *recording*) and hypothesis 6.5 (positive impact of *risk analysis*). This does not mean that the hard controls *internal auditing* and *recording* are not effective because tests to search for a mediation effect – hard controls impact on financial management through soft controls - proved to be successful (Baron and Kenny, 1986: 1176). We found that the association between the hard controls *internal auditing* and *recording* and financial management is significantly mediated by the soft controls *congruency* and *discussability*. This is in line with the answers to the open questions in the survey (Chapter 4). Respondents wanted the hard control *internal auditing* to be used with the purpose to learn instead of being judged: “Internal auditing is a snapshot and too much focused on finding errors [...], which is the main criterion the units are assessed on. Internal auditing should be more directed at giving advice and assistance to bring the material resources management of a unit to a higher level.”

We also did not found support for hypothesis 6.3 (curvilinear impact of *procedures and rules*), but in the cleaned regression analyses *procedures and rules* proved to have a positive relationship with both financial and material resources management.

We found an unexpected quasi-significant positive relationship between the hard control *segregation of duties* and financial management, while regarding material resources management, we did find support for hypotheses 6.1, the curvilinear impact of *segregation of duties*. However, the shape of this curvilinear relation was the opposite from what we expected. The U-shaped relation we found, gives us reason to believe that the hard control *segregation of duties* should be used with care. The Dutch Defence organization should strive for the right level of intensity and realize that this might be different for the various categories of materiel. Further research is needed to understand the impact of *segregation of duties* on material resources management.

7

7 Comparing the individual with the unit level perspective

The previous two chapters demonstrated that soft controls (more specifically *congruency* and *discussability*) have a positive influence on the carefulness of financial and material resources management in the Dutch Defence organization. We also found that hard controls, if mediated by soft controls, have a positive influence. Regarding the impact of specific hard controls, we found a curvilinear impact of *segregation of duties* on material resources management.

These results were based on large-scale survey research among two samples of personnel that are involved in financial and material resources management. Although the respondents were large in number and belong to well defined a-select research samples, there may be methodological concerns as the answers can be seen as self-reports, which may be causing the so-called 'common method-bias'.

Therefore, in addition we use in this chapter archival audit reports at the unit level as another source of information. We had to limit this comparison to the most sensitive sort of materiel consisting of weapons, ammunition and cryptographical equipment. Firstly, financial management was precluded since auditing of financial management takes place at higher levels in the organization than the respondents in the survey. Secondly, we precluded the management of all other material resources than ammunition, weapons and cryptographical equipment because this category of material resources is highly heterogeneous and management of this kind of materiel is equally diverse. By comparing the views of the respondents with the assessment of the 'external' archival audit reports we answer the fifth and last sub-question of this study:

Can the views of the respondents in the Dutch Defence organization be validated with information from 'external' (archival) sources?

7.1 Avoiding the common source bias

According to Meier and O'Toole (2013b: 1) several prominent public management studies (e.g. Pitts, 2009; Brewer, 2005; Jennings and Ewalt, 1998; Pandey, Coursey and Moynihan, 2004) rely on administrators' and sometimes bureaucrats' self-assessment of how their programs or organizations are performing. Sometimes there are good reasons why subjective measures are used. For many public organizations there are no appropriate records and even if there are records, the data may be aggregated in an incompatible way with the level of analysis for the practices of interest (Wall, Michie, Patterson, Wood, Sheehan, Clegg and West, 2004: 96). This is also the case in our study where official reports of the Court of Audit delve no deeper than the level of the seven branches of service while the measurement of the controls are related to respondents belonging to specific units within these services.

While subjective assessments of performance, particularly by clientele, are valuable, the assessments by administrators raise the issue of bias. The number of studies that use both external measures of performance and managers' self-assessment of performance in the same analysis is not large (Meier and O'Toole, 2013b: 2). Most of this type of work is done in the private sector where organizations share common quantitative metrics like profit or sales. Walker and Boyne (2006: 379) studied the performance of public organizations in the UK. In their study performance is assessed by both external and internal stakeholders, and these assessments are based on both archival information and individual perceptions. To explain the importance of this procedure Walker and Boyne argue that neither the external nor internal judgments are objective, and some subjectivity and political bias are likely to be present in both archival and perceptual data. Walker and Boyne (2006: 380) report fairly strong correlations between the external measure of performance, Core Service Performance (CSP), and internal assessments of performance like output and efficiency, responsiveness and service outcomes¹.

Given the limited amount of validation literature (especially in public sector research) and given the extensive use of subjective indicators as the sole indicators of public performance, additional research is needed. Consequently, in this chapter another source of data is added to the quantitative analyses regarding material management. The audit reports of the internal control departments of the Dutch Defence organization regarding the same period in time were examined, thereby adding to the level of the individual respondents data derived from the unit level. For the purpose of this kind of multilevel analysis we distinguish between five levels, using the Army as an example²: level 1 is the lowest level consisting of the individual respondents, level 2 consists of an organizational unit at the level of a company, level 3 consists of an organizational unit at the level of a battalion, level 4 consists of an organizational unit at the level of a brigade and finally, level 5 is the highest level and embodies the branch of service. The individual results will thus be compared with aggregated results at a higher level to be able to make statements on financial and material management. Figure 7-1 schematically represents the hierarchical data on the five levels. Later in the chapter we will discuss from which specific levels our unit level data are derived.

¹ Walker and Boyne (2006: 380) report fairly strong correlations between the external measure of performance, core service performance (CSP), and internal assessments of performance like output and efficiency (.599), responsiveness (.461) and service outcomes (.468).

² There are slight differences in the other branches of service.

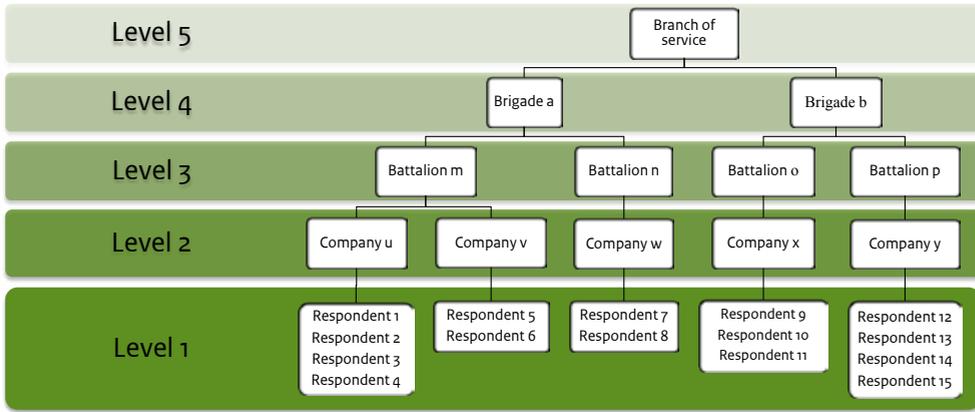


Figure 7-1 Hierarchical levels Dutch Defence organization

To justify the aggregation of employee responses to the organization level, a set of psychometric properties is assessed as can be seen in paragraph 7.3.2 and Appendix VIII. After that, first the assessment of the carefulness of the sensitive material management of the individual respondents in the survey is compared with the assessment of auditors at the unit level (Analysis 1 in Figure 7-2). Then we repeat the analysis performed in chapter 5 at the individual level, but now the dependent variables are limited to sensitive material management only, which hence is a subset of the measurement of material resources management we have used so far (Analysis 2 in Figure 7-2). After that we performed again an individual level analysis based on the survey data, but now the dependent variables are derived from the audit reports at the unit level (Analysis 3 in Figure 7-2). To conclude this chapter and answer the fifth sub-question, we compared the results of both analyses.

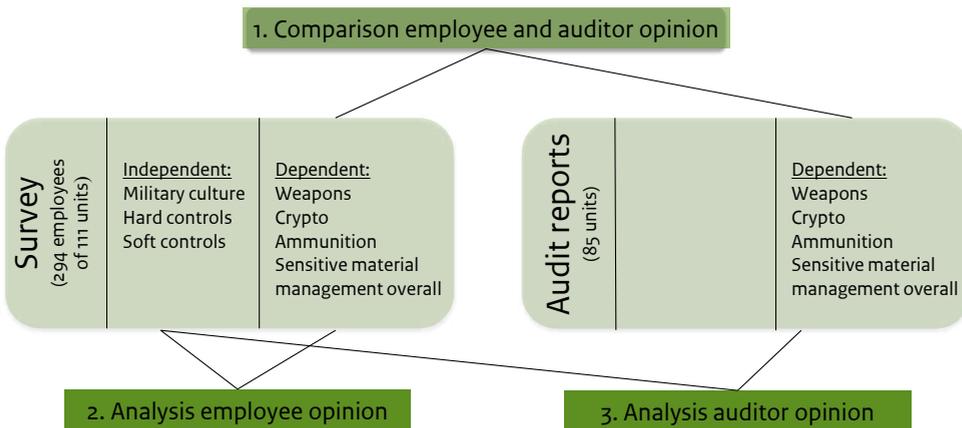


Figure 7-2 Analyses using different dependent variables

7.2 Hypotheses

The questionnaire survey is one of the most commonly used methods of data collection in (public) management research. According to Ganster, Hennessey and Luthans (1983: 321) the popularity of surveys is not surprising. They are relatively easy to use, inexpensive and often the most plausible alternative for measuring constructs that are difficult to observe, such as attitudes of organizational participants, individuals' values and preferences and their intentions. In addition, questionnaires are commonly used to measure the perceptions of respondents regarding organizational factors, job factors and work group characteristics, role characteristics and behaviour of other organizational members. So these surveys often provide information used to measure both the independent and dependent variables in the analysis. However, this introduces the risk of common method bias, a serious methodological challenge that has not received much attention as a distinct topic in public management research (Jakobsen and Jensen, 2015: 3).

Probably, it is better to speak about common method *variance* instead of common method *bias* since there is no final conclusion if this variance actually leads to biased results. Common method variance occurs "when the measurement technique introduces systematic variance into the measure. This systematic error variance can cause observed relationships to differ from the true relationships among constructs" (Doty and Glick, 1998: 374). Likewise, Richardson, Simmering and Sturman (2009: 763) define common method variance as "systematic error variance shared among variables measured with and introduced as a function of the same method and/or source". According to Campbell and Fiske (1959) this systematic error variance can bias the estimated relationship between measures, thereby causing common method bias. The common method can be thought of as a confounding (or third) variable that influences both the dependent and the independent variable in a systematic way. This may either inflate or deflate the observed relationship between the independent and the dependent variable, yielding potentially misleading conclusions (Jakobsen and Jensen, 2015: 5).

The comprehensive review of Podsakoff, MacKenzie, Lee and Podsakoff (2003: 881) distinguishes between the four most likely causes of common method bias: bias produced by using a common source, bias produced by item characteristics, bias produced by item context and bias produced by measurement context. The first type of common method bias, also called self-report bias, is likely to be relevant in this study because it can occur when using a common source (for example a survey respondent) to provide information on both the independent and the dependent variable. As said, this specific type of common method bias is called common source bias and it may arise from certain tendencies that impact the respondents. Podsakoff et al. (2003: 881) argue that respondents try to maintain consistent in their responses to similar questions or to organize information in consistent ways. This is called the "consistency motif"³ and is likely to be particularly problematic in



3 Johns, 1994: 587; Podsakoff and Organ, 1986: 534.

those situations in which respondents are asked to provide retrospective accounts of their attitudes, perceptions, and/or behaviours.

Another well-known response tendency is social desirability. According to Randall and Fernandes (1991: 805-806) individuals may have some attributes that are negatively valued by general societal norms (e.g. abuse of drugs, drunken driving) and other attributes that are positively valued (e.g. voting in elections, church attendance). In an effort to conform to societal norms, individuals may present themselves in a favourable light, regardless of their “true” feelings or their “actual” behaviour. Specifically individuals may under-report those activities perceived to be socially undesirable and may over-report those activities deemed to be socially desirable (Ganster et al., 1983: 322). Paulhus (1984: 599) distinguishes between ‘self-deception’, where the respondent actually believes his or her positive self-report, and ‘impression management’, where the respondent consciously dissembles.

According to Meier and O’Toole (2013a: 431), numerous studies show that self-assessment of individuals regarding their own performance or the performance of their organizations leads to individuals consistently overestimating the level of performance in the organization; this overestimation is not related to more difficult tasks or the availability of resources (see also Table A.1 in Meier and O’Toole, 2013b: 25). Employees and managers may respond to surveys in ways that reflect favourably on themselves in terms of both organizational performance (in our case careful management of sensitive material resources) and the adoption of the most current managerial practices. Although common source bias often generates false positives -the conclusion that a relationship exists when one does not- it can also generate false negatives -insignificant relationships when an actual relationship exists. So the first hypothesis we will be testing in this chapter is:

H_{7.0}: *Because of social desirability, the assessment of the employees on careful sensitive material management will be different from the assessment of the auditors.*

Since in chapter 5 we performed analyses using only the assessment of employees regarding the dependent as well as the independent variables, in this chapter we want to check if using the auditors assessment as the dependent variable means that other independent variables are significant or not. In general, the same hypotheses as described in chapter 5 will be examined. However, with respect to the first hypothesis the direction of the expected relation is contrary to what we formulated in chapter 5. Particularly because we focus in this chapter on sensitive material resources and the results in chapter 5 regarding material resources management have proven to point in the opposite direction, we formulate the first hypothesis in this chapter as follows:

H_{7.1}: *The more adherence of the employees to the military professional culture, the more careful sensitive material resources management is assessed by the auditors within the Dutch Defence organization.*

The remaining hypotheses are similar to the hypotheses formulated in chapter 5:

- H 7.2: *The more hard controls are present in an organization perceived by the employees, the more carefully the sensitive material resources management of that organization is assessed by the auditors.*
- H 7.3: *The more soft controls are present in an organization perceived by the employees, the more carefully the sensitive material resources management of that organization is assessed by the auditors.*
- H 7.4: *Hard controls will strengthen the positive relationship between military professional culture and sensitive material resources management assessed by the auditors.*
- H 7.5: *Soft controls will strengthen the positive relationship between military professional culture and sensitive material resources management assessed by the auditors.*
- H 7.6: *Soft controls will strengthen the relationship between hard controls and sensitive material resources management assessed by the auditors.*

7.3 Methodology

The survey was performed in 2010 and 2011 so only the audit reports of the corresponding years were examined.

7.3.1 Selected scope of research

We choose to focus on the most sensitive sort of materiel namely weapons, ammunition and cryptographical equipment. This scope was selected because due to the fact that financial responsibilities are not further decentralized in the Dutch Defence organization, auditing of financial management takes place at higher levels in the organization. For example in the Army, we selected units at the company level but financial management is audited at the level of brigades (see figure 7-1 earlier in this chapter). Material resources management is audited at the level of companies so we were able to make a better comparison between the answers of the respondents in the survey and the audit reports available. Furthermore we precluded the management of all other material resources than ammunition, weapons and cryptographical equipment because these material resources vary from pencils and papers till computers and cars. In other words, this category of material resources is highly heterogeneous and management of this kind of materiel is probably equally diverse.

Not all 111 units in the sample of the survey have been audited in 2010 or 2011 in every aspect of material resources management; we have been able to examine the audit reports of 85 units (77%). Furthermore, not all these 85 units have been audited in every aspect of sensitive material resources management. In the management of weapons we found 54 (49%), in the

management of cryptographical equipment we found 59 (53%), but in the management of ammunition we only found 27 (24%) matching audit reports. This is because the ammunition of several subunits is stored together in one ammunition depot due to the stringent rules and regulations of this kind of storage capacity.

7.3.2 Preliminary tests for multilevel-research

Summarizing, the need to combine individual level and unit level data is based on the nature of organizations as hierarchically nested systems. Therefore it is difficult in practice to find single-level relations that are unaffected by other levels. Similarly, the set of group or organization-level phenomena that are completely uninfluenced by lower levels is also likely to be small (Kozlowski and Klein, 2000: 13). So it is interesting to consider whether respondents of the same organizational unit experience a common factor that will make them interpret the hard and soft controls and their impact on sensitive material resources management in a different way than respondents who belong to another organizational unit.

To find out if multilevel-research is justified, various preliminary analyses of variance should be performed. In the bachelor thesis of Sub Lieutenant Dalm (2013)⁴ oneway ANOVA, posthoc and ICC's tests indicate that there are group-level influences implying that multilevel-research is justified. The results of these preliminary tests are shown in Table 7-1 and the way these results are achieved is explained in Appendix VIII.

Construct	F ratio	ICC(1)	ICC(2)
Material resources management	1,773**	.127	.436
Hard controls	2,115***	.112	.527
Soft controls	2,003***	.126	.500
Military culture	8,110***	.432	.877

Table 7-1 F-ratio ANOVA, ICC(1) and ICC(2)

7.3.3 Validity and reliability

Based on the checklists used in the audit reports we were able to identify the items that represent the carefulness of different aspects of sensitive material resources management, in this study the dependent variables. In mutual agreement, after extensive discussion between the author of this dissertation and the two supervisors, we found that these items (as shown in Table 7-2 and the items in bold in Appendix IX) are the essence of careful management of sensitive materiel. The reason is that a negative response to these questions/statements indicates that the materiel is not carefully managed with consequences in terms of the possibility of missing weapons, ammunition or cryptographical equipment. We were also able to identify specific items in the checklists used in the audit reports that relate to hard and soft controls, in this study the main independent variables. Actually it was remarkable that

⁴ The thesis of Sub Lieutenant T. Dalm (2013). *Soft controls zijn hard nodig. Een onderzoek naar de impact van hard en soft controls op het financieel en materieel beheer bij Defensie*. was based on the data and supervised by the author of this dissertation.

the majority of the items (about 70%) in the checklists relate to hard controls and just a few items (about 10%) may be associated with soft controls. The complete checklists, translated from the original Dutch to English, and our categorization in dependent and independent variables can be found in Appendix IX. Exploring this particular database, we first performed exploratory factor analysis on the dependent variables using Oblimin rotation to determine whether the selected items in the checklists belong to one or more components (Field, 2009: 642)⁵. The results show that two items should be deleted (item 7.4 of the checklist regarding Weapons and item 8.3 of the checklist regarding Ammunition) because they load on several components. The remaining items can be divided into three components related to respectively management of weapons, management of cryptographical equipment and management of ammunition. To assess the validity of the dependent variables, principal component analyses was conducted (Field, 2009: 638). All preliminary analyses showed satisfactory results: the Kaiser-Meyer-Olkin values all met the recommended value of .6 (Kaiser, 1974: 35) and Bartlett's test of Sphericity reached statistical significance (Bartlett, 1954; Field, 2009: 660).

Then Cronbach alpha coefficients were computed on the remaining items to assess a satisfactory internal reliability of the variables of at least $\alpha = .7$ (Field, 2009: 673). The description of the items as well as the results of the principal component and reliability analysis of the three dependent variables are shown in Table 7-2.

■
5 Oblimin is a form of oblique rotation and in this case preferred to orthogonal rotation because it can be expected that the factors are related.

Dependent variable Weapons (Eigen value = 1.92; α = .710)	
Item in Checklist Management of Weapons	Loadings
4.3 Weapons_Is the issuing of weapons on (personal) loans in order?	.77
7.3 Weapons_Are the weapons of the unit in the central weapon storage (armory) according to the administration actually physically present?	.85
8.1 Weapons_Are the special weapons ready for use that are registered in the equipment administration and "CWRS" actually present?	.77
Dependent variable Cryptographical equipment (Eigen value = 1.97; α = .733)	
Item in Checklist Management of Cryptographical equipment	Loadings
4.1 Crypto_There are no unexplained differences in authorization of crypto equipment.	.83
8.1 Crypto_There is administrative agreement between the management systems and CCIRS and the physical presence of "CCI" crypto-equipment.	.83
8.3 Crypto_There is agreement between the physical and administrative presence of specific "CCI-M/A" crypto-equipment of the unit.	.78
Dependent variable Ammunition (Eigen value = 2.30 α = .837)	
Item in Checklist Management of Ammunition	Loadings
6.2 Ammunition_Does the physical inventories according to the stack identification cards match the administrative stocks?	.87
8.2 Ammunition_Is the use of ammunition because of regular requests (including returns) lawful (i.e. substantiated with legitimate signed source documents)?	.93
8.4 Ammunition_Are the remaining inventory adjustments of the ammunition supply legitimate?	.82

Table 7-2 Results of principal component and reliability analysis

7.3.4 Frequencies dependent variables based on audit reports

Before elaborating further analyses, we explore these new dependent variables based on the checklist used in the audit reports by determining the frequencies. Per dependent variable, the three items were scored. A score of "0" indicates careless management of materiel, a score of "1" indicates that materiel was carefully managed. After that, per dependent variable, the mean scores of these three items were computed. At last, the mean scores of the three dependent variables were also merged into one overall variable "Sensitive material resources management". The frequencies of the management of the three types and the overall variable of sensitive materiel are presented in Table 7-3:

		Weapons		Cryptographical equipment		Ammunition		Sensitive material resources management	
		Frequency	Cum. %	Frequency	Cum. %	Frequency	Cum. %	Frequency	Cum. %
Value	.00	5	9.3	6	10.2	7	25.9	5	6.0
	.17	-	-	-	-	-	-	1	7.1
	.25	-	-	-	-	-	-	2	9.5
	.33	1	11.1	3	15.3	1	29.6	4	14.3
	.50	9	27.8	9	30.5	0	29.6	10	26.2
	.58	-	-	-	-	-	-	1	27.4
	.67	5	37.0	6	40.7	1	33.3	7	35.7
	.75	-	-	-	-	-	-	6	42.9
	.78	-	-	-	-	-	-	1	44.0
	.83	-	-	-	-	-	-	3	47.6
	.89	-	-	-	-	-	-	2	50.0
	1.00	34	100.0	35	100.0	18	100.0	42	100.0
Total		54		59		27		84	
Missing	System	31		26		58		1	
Total		85		85		85		85	

Table 7-3 Frequencies dependent variables based on the audit reports

Because of the dichotomous character of the items, a limited amount of variation is seen in the mean scores of the three dependent variables, resulting in only four options between a score of “0” and “1” (0; .33; .67 and 1). Even in the overall variable, which consists of 9 items, there are only 12 options between the score of “0” and “1” of which 50% relates to the latter.

Regarding management of weapons in 34 of the 54 cases (63%) the audit reports indicate that there are no flaws what so ever (maximum score of 1). This means that in 37% of the units auditors found one or more flaws in the management of weapons.

The auditreports regarding management of cryptographical equipment, show in 35 of the 59 units, (59%), no flaws what so ever (maximum score of 1). In 41% of the units the auditors found one or more flaws when they assessed the management of cryptographical equipment.

In 18 out of 27 auditreports (67 %) regarding the management of ammunition, auditors found no flaws at all (maximum score of 1). Meaning that in 33% of the units one or more flaws were found by the auditors who assessed the management of ammunition.

7.4 Comparison auditor and employee opinion

In order to know whether in this study the common method variance is at hand, we compared -per unit- the average valuation of respondents in the survey (average employee opinion per unit) with the assessment of the auditors (auditor opinion per unit) thereby investigating $H_{7.0}$.

To be able to compare the opinion of the auditors with the opinion of the employees regarding the material management of a specific unit, we transformed the valuation of the auditors and the valuation of the employees into percentages.

Example

*Regarding the management of weapons of the C-company 11 Infantry Battalion 11 Air Mobile Brigade, transforming the valuation into percentages means that a score of the auditor (which varies between 0 and 1) of 0.33 is transformed into 33% ($0,33 * 100$). An average score of the employees of this unit (which varies between 1 and 6) of 5.5 is transformed into 90 % $[(5.5-1)/(6-1)] * 100$. Then these two percentage scores are deducted from each other, leaving a difference of 57%. We used a coding system of no variation (0%); small variation (1 – 20%); moderate variation (21 – 40%) and large variation (> 41%), to determine the degree of variation. So in the case of this unit, the degree of variation can be qualified as large. At last we determined whether the auditor on the one hand or the employees on the other hand are more positive about the material management. In the case of the C-company 11 Infantry battalion the employees were more positive than the auditors about the management of weapons.*

As can be seen in Table 7-4 the degree of variation between the auditors opinion and the employee opinion was compared. Regarding management of weapons we could make this comparison for 43 units, regarding cryptographical equipment we were able to compare 51 units, regarding ammunition comparison could only be made for 20 units because of the earlier mentioned joint use of units of this specific storage capacity⁶. For sensitive materiel as a whole we were able to compare 71 units. In the majority of cases (between 45 and 63 %, depending on the specific type of sensitive materiel) there is no variation or the degree of variation is small.

⁶ This number of units does not equal the earlier mentioned numbers of matching audit reports: management of weapons 54 (49%); management of cryptographical equipment 59 (53%); and management of ammunition 27 (24%) because of missing values.

	Weapons		Cryptographical equipment		Ammunition		Sensitive material management	
	# units	% excl. NA	# units	% excl. NA	# units	% excl. NA	# units	% excl. NA
NA (non applicable)	42		34		65		14	
No variation (0%)	10	23%	7	14%	4	20%	7	10%
Small variation (1-20%)	17	40%	23	45%	7	35%	25	35%
Moderate variation (21-40%)	10	23%	12	23%	3	15%	26	37%
Large variation (> 41%)	6	14%	9	18%	6	30%	13	18%
	85		85		85		85	

Table 7-4 Degree of variation between auditors and employee opinion

It is also interesting to see who are more positive about the carefulness of the various types of material management, the auditors or the employees? As can be seen in Table 7-5 regarding all aspects of sensitive material management, in most units the auditors have a similar or a more positive opinion than the employees of that unit. If the auditors' opinion is more positive than the opinion of the employees, the vast majority (50 – 78%) of these variation is small. Still, in 14 units regarding management of weapons, in 17 units regarding management of cryptographical equipment and in 7 units regarding management of ammunition, the assessment of the employees of that unit is more positive than the auditors' opinion. Table 7-5 also shows that when the assessment of the employees is more positive the variation with the auditors' opinion tends to be larger⁷.

	Weapons		Cryptographical equipment		Ammunition		Sensitive material management	
	# units	% excl. NA	# units	% excl. NA	# units	% excl. NA	# units	% excl. NA
Auditors opinion > employee opinion	19	44%	27	52%	9	45%	32	45%
Large variation	0	0%	0	0%	0	0%	1	3%
Medium variation	5	26%	9	33%	2	22%	15	47%
Small variation	14	74%	18	67%	7	78%	16	50%
Auditors opinion < employee opinion	14	33%	17	34%	7	35%	32	45%
Large variation	6	43%	9	53%	6	86%	12	38%
Medium variation	5	36%	3	18%	1	14%	11	34%
Small variation	3	21%	5	29%	0	0%	9	28%
No variation	10	23%	7	14%	4	20%	7	10%
	43		51		20		71	

Table 7-5 Comparison of auditor and employee opinion

⁷ Further analysis shows that regarding the few units where the degree of variation can be qualified as large, in all but one case the auditors opinion was lower than the opinion of the employees of these units. Here lies the potential danger of employees being unconsciously incompetent (e.g. Kruger and Dunning, 1999).

After transforming the average employee opinion and auditor opinion into percentage scores we conducted the Wilcoxon Signed-Rank Test (Field, 2009: 540) to determine if the difference between the auditors opinion and the employee opinion is significant. We choose this non parametric alternative of the Paired samples T-test because of the non-normal distribution of the data and the relative small N of cases at unit level.

A Wilcoxon Signed-Rank Test indicated that the auditors opinion of management of weapons (median = 100) varies not statistically significant from the employee opinion (median = 85) about management of weapons $Z = -.61$, $p = .54$. The same applies to a Wilcoxon Signed-Rank Test regarding the management of cryptographical equipment. The auditors' opinion (median = 100) varies not statistically significant from the employee opinion (median = 80) $Z = -.02$, $p = .98$. The Wilcoxon Signed-Rank Test regarding the management of ammunition indicated that the auditors' opinion (median = 100) likewise varies not statistically significant from the employee opinion (median = 80) $Z = -.114$, $p = .26$. At last, the Wilcoxon Signed-Rank Test regarding sensitive material management overall indicated that the auditors' opinion (median = 94.44) likewise varies not statistically significant from the employee opinion (median = 80.10) $Z = -.122$, $p = .22$.

These computations show that the idea of careful management of sensitive materiel of the respondents is overall similar to the assessment of the auditors. Therefore we reject the first hypothesis, $H_{7,0}$, of this chapter.

7.5 Regression analysis using employee opinion

Since the previous computations show that the idea of careful management of sensitive materiel of the respondents is overall similar to the assessment of the auditors, we now want to test the remaining hypotheses of this chapter. It is import to realize that the analysis we are going to perform in this section is not similar to the analysis we conducted in chapter 5 regarding material resources management. Because in chapter 5 we used the construct of material resources management as the mean of management of weapons, cryptographical equipment, ammunition and other material equipment as the dependent variable. In this chapter, as explained in section 7.3.1. we have chosen to limit the analysis to sensitive material management, which is a subset of the previously used measurement.

Consequently we merged the answers of the respondents in the survey on the three questions about the carefulness of the management of weapons, cryptographical equipment and ammunition into one dependent variable "Sensitive material management_respondents". Then the Cronbach alpha coefficient was computed on the items of this new construct of the dependent variable to assess a satisfactory internal reliability of at least $\alpha = .7$ (Field, 2009: 673). Regarding the overall variable sensitive material management the α is .793 which meets the requirement.

The Pearson correlations and descriptive statistics at individual level based on employee opinions gathered in the survey are shown in Table 7-6:

	Range	Mean	SD	N	1	2	3	4	5	6	7
1 Weapons_respondents	1 - 6	5.17	.86	237							
2 Crypto_respondents	1 - 6	4.91	.91	229	.58**						
3 Ammunition_respondents	1 - 6	5.06	.95	220	.63**	.50**					
4 Sensitive material management_respondents	1 - 6	5.05	.81	244	.87**	.84**	.86**				
5 Military culture	1 - 13	5.86	3.33	270	.04	.10	-.08	.03			
6 Hard controls_respondents	0 - 6	3.77	1.33	247	.05	.09	.12	.13	-.13		
7 Soft controls_respondents	1 - 6	4.38	.65	211	.30**	.42**	.25**	.36**	-.04	.22**	

* p < .05; ** p < .01

Table 7-6 Pearson correlations at individual level based on employee opinion

In the analyses we have inserted all control and independent variables respectively, in regression models going up from 1 till 6. First, the control variables were inserted in Model 1. In Model 2 military professional culture was added to the control variables. In Model 3 hard controls were added and in Model 4 soft controls were added. To pursue the testing of hypothesis 7.4 and 7.5, we added a fifth model including the product terms of 'hard controls x professional military culture' and 'soft controls x professional military culture'. At last, to pursue the testing of hypothesis 7.6, we included in Model 6 the product term of 'hard controls x soft controls'. This inclusion of product terms in multiple regression is an appropriate way of testing for interaction (Allison, 1998: 167). In Table 7-7 the results of these hierarchical multiple regression analyses using listwise deletion to deal with missing values are summarized. We only show the sixth model, since we found no specific results going from one model to the other. The complete hierarchical multiple regression models are available in Appendix X.

	Weapons_ respondents (N = 155)	Crypto_ respondents (N = 159)	Ammunition_ respondents (N = 146)	Sensitive material management_ respondents (N = 160)
Constant	3.39***	2.35**	4.23***	3.29***
Gender	-.04	-.00	-.07	-.05
Age	.10	.02	.10	.09
Military culture	.06	.14	-.09	.08
Hard controls	-.05	-.01	-.02	.04
Soft controls	.30**	.40***	.15⁺	.27**
Hard controls x military culture	.04	.04	.04	-.02
Soft controls x military culture	.05	-.02	.34**	.23*
Hard controls x soft controls	.07	.01	.20*	.12
R ²	.10	.18	.16	.17
Adjusted R ²	.05	.14	.11	.12
F statistic	.65	.02	4.95*	1.90
* p < .05; ** p < .01; *** p < .001. two-tailed test. ⁺ p < .10				

Table 7-7 Regression analyses at individual level based on employee opinion

The results in Table 7-7 demonstrate that none of the control variables have a significant effect on the assessment of sensitive material resources management.

The first hypothesis concerns the particular character of the Dutch Defence organization. We were not able to demonstrate a significant relation between the military culture and the quality of any aspect of sensitive material resources management⁸. Therefore we have to reject Hypothesis 7.1.

The same applies to Hypothesis 7.2. Table 7-7 shows that hard controls do not have a significant impact on any aspect of sensitive material resources management.

However, Hypothesis 7.3 regarding the impact of soft controls on sensitive material resources management is confirmed. The results in Table 7-7 demonstrate that the soft controls impact significantly and positively on every aspect of sensitive material resources management.

We have to reject Hypothesis 7.4 with respect to the strengthening effect of hard controls on the positive relationship between military culture and sensitive material resources management. The results in Table 7-7 demonstrate that hard controls do not have a

8 Only with the management of cryptographical equipment Appendix X shows that in model 2, 3 and 4 military culture has a significant positive influence, but this influence vanishes in model 5 and 6 when the product terms are entered into the equation.

moderating effect in the relation between military culture and sensitive material resources management since the product term was not significant.

However the opposite effect of soft controls can be discerned: here the analysis demonstrates that soft controls have a significantly higher impact on the perceived quality of ammunition and overall sensitive material resources management among core military people than among civilians and supporting servicemen. As said, the survival of the men and women in action very much depends on the presence and general condition of their gear. Therefore, Hypothesis 7.5 can be confirmed.

At last Table 7-7 shows limited evidence to support Hypothesis 7.6 regarding the interaction between hard and soft controls. The product term is only significant regarding the management of ammunition.

7.6 Regression analysis using auditor opinion

We want to find out if the same relations between military culture, hard and soft controls (as the independent variables) and the auditors assessment of sensitive material resources management (as the dependent variable) are significant or not, thereby testing the hypotheses 7.1 till 7.6.

We performed regression analyses that combine the independent variables based on the assessment of the respondents in the survey (employee opinion) and the dependent variables drawn from the checklists used in the audit reports of the corresponding unit (auditors opinion). This procedure implied that each individual respondent was assigned the score from the audit report pertaining to the unit he/she belonged to. The descriptive statistics and Pearson correlations are shown in Table 7-8:

		Range	Mean	SD	N	1	2	3	4	5	6	7
1	Weapons_auditors	0 - 1	.73	.39	137							
2	Crypto_auditors	0 - 1	.71	.37	161	-.27*						
3	Ammunition_auditors	0 - 1	.71	.45	68	-.11	.19					
4	Sensitive material management_auditors	0 - 1	.69	.34	228	.80**	.77**	.87**				
5	Military culture_respondents	1 - 13	5.86	3.33	270	-.20*	.13	.19	-.05			
6	Hard controls_respondents	0 - 6	3.77	1.34	247	.12	-.07	-.05	.03	-.13		
7	Soft controls_respondents	1 - 6	4.38	.65	211	-.10	.06	.06	.05	-.04	.22**	

* p < .05; ** p < .01. two tailed-test.

Table 7-8 Pearson correlations at individual level based on employee and auditor opinion

Like before, in the regression analyses we have inserted all control and independent variables respectively, in models going up from 1 till 6. We used listwise deletion to deal with missing values. In Table 7-9 the results of these hierarchical multiple regression analyses regarding management of weapons, cryptographical equipment, ammunition and overall sensitive material resources management assessed by the auditors are summarized showing only model 6. The complete hierarchical multiple regression models are available in Appendix XI.

	Weapons_ auditors (N = 93)	Crypto_ auditors (N = 100)	Ammunition_ auditors (N = 40)	Sensitive material management_ auditors (N = 149)
Constant	.94*	.30	-.50	.24
Gender	.00	-.14	.10	-.02
Age	.12	.18	.05	.15⁺
Military culture_respondents	-.34**	.25*	.09	-.07
Hard controls_respondents	.00	-.00	.08	-.07
Soft controls_respondents	-.07	.11	.24	.16⁺
Military culture x hard controls	.07	-.19	-.35	.04
Military culture x soft controls	-.01	-.05	-.43	-.15
Hard controls x soft controls	.05	-.15	.45*	.14
R ²	.18	.11	.24	.08
Adjusted R ²	.10	.03	.05	.03
F statistic	.20	1.39	4.00*	2.12
* p < .05; ** p < .01; *** p < .001. two tailed-test.				
+ p < .10 (quasi-significant)				

Table 7-9 Regression analyses at individual level based on employee and auditor opinion

First, it should be noted that the number of cases -particularly regarding management of ammunition- is limited. With exception of the overall variable “sensitive material management” the conditions of the rule of thumb for sample size for multiple regression analysis⁹ are not met.

The results in Table 7-9 demonstrate that the control variable “gender” does not have a significant effect on the assessment of sensitive material resources management. The control variable “age” is quasi significant regarding sensitive material management overall.

9 According to Tabachnick & Fidell (1996: 132) the required sample size depends on the desired power, alpha level, number of predictors and effect sizes. Green (1991) provides two rules of thumb: $N \geq 50 + 8m$ (m = number of independent variables) for testing the multiple correlation and $N \geq 104 + m$ for testing individual predictors. These rules of thumb assume medium size relationships between the dependent and independent variables, $\alpha = .05$ and $\beta = .20$

The results in Table 7-9 show that military culture is of significant influence on careful management of weapons and cryptographical equipment assessed by the auditors. Since regarding management of weapons the sign of this relationship is negative, it is the opposite of Hypothesis 7.1, which said that the more adherence individual respondents have towards the military professional culture, the more careful sensitive material resources management is assessed by auditors. Regarding cryptographical equipment the sign of the relationship is positive, meaning that the more adherence individual respondents have to the military professional culture, the more careful the management of cryptographical equipment is, thereby confirming Hypothesis 7.1. This is a remarkable result. Apparently, in units with a more military character the management of weapons is considered to be less careful by the auditors, while the opposite is true for management of cryptographical equipment. This could be explained by the fact that in management of weapons considerably more people - in operational units all military personnel - are involved, which clearly increases the chance of errors. On the other hand, management of cryptographical equipment is dedicated to a very small number of specially trained personnel. Another, or an additional explanation can be found in the impact of the two different kinds of materiel. A (temporarily) missing weapon may cause an immediate threat to the operations, while the missing of crypto equipment or keys causes a more indirect danger. This could also be reflected in the way auditors (subconsciously) look at the object they are auditing. There can be no room for errors in the management of weapons, so it is possible that the auditors will raise their standards with which they assess their observations regarding weapons management, which logically increases the chance of finding flaws.

We have to reject Hypothesis 7.2 regarding the presumed positive impact of hard controls on sensitive material management since Table 7-9 shows that hard controls do not have a significant impact on any kind of sensitive material resources management.

The results in Table 7-9 show limited evidence to confirm Hypothesis 7.3 since it demonstrates that soft controls impact (quasi-)significantly on the auditors' opinion with respect to overall sensitive material resources management. These results are in accordance with the expectations. However, there are no significant relations between soft controls as indicated by the respondents and the auditors' opinions concerning the management of weapons, ammunition and cryptographical equipment. This is remarkable, as significant relations do exist between the respondents' opinions of both soft controls and these dependent variables. Apparently, the auditors' judgments are not based on dynamics that are related to soft controls as perceived by the respondents. This finding is not fully clear. It requires further examination in future studies.

We have to reject Hypothesis 7.4 and 7.5 since the results in Table 7-9 demonstrates that respectively hard and soft controls do not have a moderating effect in the relation between military culture and sensitive material resources management since the product terms was not significant.

As can be seen in Table 7-9 the interaction variable of hard controls x soft controls regarding management of ammunition is positively significant, so we found limited evidence to support Hypothesis 7.6. This means that soft controls strengthen the relationship between hard controls and management of ammunition assessed by the auditors.

7.7 Subconclusion comparing the individual and the unit level perspective

The results of the comparison between the employee opinion and the auditors opinion suggest that the idea of careful management of sensitive materiel of the respondents is overall similar to the assessment of the auditors. Therefore we can reject the hypothesis 7.0 of this chapter.

This gives reason for a comparison of the results of the regression analyses based on the employee opinion (Analysis 1 in Table 7-10) and the regression analysis based on the auditors opinion of careful sensitive materiel management (Analysis 2 in Table 7-10).

		Weapons	Crypto	Ammunition	Sensitive material management
1. Analysis using employee opinion	Military culture	.06	.14	-.09	.08
	Hard controls	-.05	-.01	-.02	.04
	Soft controls	.30**	.40***	.15⁺	.27**
	Hard controls x military culture	.04	.04	.04	-.02
	Soft controls x military culture	.05	-.02	.34**	.23*
	Hard controls x soft controls	.07	.01	.20*	.12
		Weapons	Crypto	Ammunition	Sensitive material management
2. Analysis using auditor opinion	Military culture	-.34**	.25*	.09	-.07
	Hard controls	.00	-.00	.08	-.07
	Soft controls	-.07	.11	.24	.16⁺
	Hard controls x military culture	.07	-.19	-.35	.04
	Soft controls x military culture	-.01	-.05	-.43	-.15
	Hard controls x soft controls	.05	-.15	.45*	.14
* p < .05; ** p < .01; *** p < .001. two-tailed test. ⁺ p < .10					

Table 7-10 Comparison analyses based on employee versus auditors opinion

Firstly it is noticeable that military culture only is of significance influence when the auditors assess the management of weapons and cryptographical equipment. This is not the case when the respondents give their opinion.

Furthermore we see that the soft controls influence significantly and positively on all kinds of materiel in the employee opinion, but only on overall sensitive material management in the auditors opinion. So it seems that the positive effect of soft controls (direct and indirect) is weaker when the management of sensitive materiel is assessed by the auditors.

Third, the diminishing effect of soft controls on the negative relation between military culture and sensitive material management is only shown in the management of ammunition and overall sensitive material management when assessed by the respondents. When assessed by the auditors this effect is not shown at all.

Finally, the strengthening effect of soft controls in the relationship between hard controls and the management of ammunition was recognized in both analyses.

Taking everything together, the analyses in this chapter lead us to conclude that soft controls - and particularly soft controls in the military context - play an almost exclusive role in establishing careful sensitive material resources management, irrespective of the way this has been measured. This underlines the importance of soft controls in the Dutch Defence organization.

8

8 Conclusion and discussion

The title of this dissertation, “Control with Care”, relates first of all to the subject of this study, careful financial and material resources management. As a public sector organization, the Dutch Defence organization needs to do its job properly, while using budgets and material resources in an appropriate manner. This implies the careful use of scarce resources, preventing phenomena such as overspending, inefficiencies, waste and the unconcerned use of equipment. Secondly, the title relates to carefully choosing the right controls for achieving the objectives of the organization. This study found reason to believe that the often legally enforced hard controls are not enough to keep the Dutch Defence organization in control. To be effective, these hard controls must be used in the right way and intensity and they should be embedded in a system in which soft controls play an important role. Hereby an immediate link has been established with the subtitle of this dissertation, the value of soft controls in the management control system of the Dutch Defence organization. Grabner and Moers (2013: 409) claim that in a management control system, in contrast to a management control package, the various controls are deliberately chosen, thereby considering their mutual interdependencies with the purpose of resolving the same control problem.

The aim of this study was to investigate what kind of controls - and in which configuration - are suitable for the carefulness of financial and material resources management of the Dutch Defence organization. This final chapter will first provide an overview of how this research objective has been achieved, offering the answers to the sub-questions leading to the answer of the central research question. Second, the limitations of this study are discussed and to overcome these limitations, avenues for further research are formulated. Finally the practical implications of the research results will be discussed.

8.1 Conclusion

In order to answer the study's central research question, five sub-questions have been distinguished. The first sub-question concerns the theoretical background regarding the relations between military professional culture, cost awareness, hard and/or soft controls and financial and material resources management. The answer to this sub-question has been elaborated in chapter 2. The second, third, fourth and fifth sub-question have been answered in respectively the chapters 4, 5, 6 and 7. Below the separate outcomes of these latter chapters – all based on interviews and a large-scale survey - will be summarized. Their combined outcome provides the answer to the central research question.

8.1.1 Answering sub-question 2

With the second sub-question of this dissertation we aimed to explore if and to which extent the various stakeholders differ in their views of managing the financial and material resources in the Dutch Defence organization.

After exploring the management control practices in the Dutch Defence organization by analysing the interviews with commanders and financial specialists and investigating the answers to the open questions in the survey, it seems that management control is a matter of both hard and soft controls.

The findings from the interviews and the answers to the open questions indicate that improvement in hard controls, especially *rules and procedures*, *internal auditing* and *recording* predominantly can be found in modernizing the control procedures in such a way that they align with new ideas concerning the so-called 'enabling' bureaucracy (Adler and Borys, 1996: 66). For instance, reconsidering the division of responsibilities and authorities could be helpful in this regard.

At the same time improvement in soft control relates to the need of making the people in the organization more aware of the fact that everything needs to be paid for, that devices or gear should not disappear, that time is precious and that nothing is for free. Frequently mentioned, in the interviews as well as in the answers to the open questions were the soft controls *congruency* and *discussability*. Fortunately, attempts to guide the mind-set towards a more adequate management control direction can profit from essential features of militaries' organizational cultures, such as leadership and functional discipline.

Another feature of the military culture that frequently came forward in the interviews was the so-called 'can-do', or result-, or mission oriented mentality. A 'can-do' mentality implies acting without much ado. In situations of immediate threat and crisis, the value of this mentality or attitude can simply not be overestimated. That is why the military can go on where everybody else stops, even in the most difficult circumstances. However, if this implies jumping to solutions and conclusions when there is no climate to express doubts and to analyse the root of the problem first, a 'can-do' mentality may produce suboptimal results, both in peacetime and operational situations.

We performed a number of statistical analyses on the survey data to determine if there are any differences in the views of the various internal stakeholders about the management of financial and material resources in the Dutch Defence organization. It appears that the commanders assess the financial management to be significantly more careful than other stakeholders do. Regarding material resources management the assessment of the various stakeholders did not deviate significantly from each other. The commanders and the logistic specialists proved to have a significant higher score on military culture. The cost awareness of the commanders and also the financial specialists proved to be significantly higher than the cost awareness of the other respondents. The financial and logistic specialists indicated a higher awareness of the design, existence and contribution of the hard controls compared to employees with responsibilities in financial or material resources management. There were no deviating results in the assessment of the soft controls.

8.1.2 Answering sub-question 3

With the third sub-question we aimed to determine which kind of controls, hard and/or soft, are more effective in managing the financial and material resources of the Dutch Defence organization.

The multiple regression analyses conducted with the data from the large-scale surveys did not provide evidence for the expected mediation effect of cost awareness in the relation between military professional culture and financial and material resources management. Cost awareness has no significant effect on financial or material resources management at all. This can possibly be explained by the fact that cost awareness is not that relevant to the respondents in this study who operate at a relatively lower level in the organization. Budgets and financial consequences are assigned to a higher level in the organization creating a lack of cost insight among the respondents in our study. As known, cost *insight* is a precondition for *cost awareness*.

Military culture proved to be of no significant influence on financial management. However, regarding material resources management we found that if the military professional culture dominates in an organizational unit, the quality of the material resources management is perceived to be significantly better. This direct impact of the military professional culture is not in accordance with what was expected in the first place, but can easily be explained. Military people – particularly those in action - depend on their military gear, such as helmets, flak jackets, weaponry or vehicles, because these are decisive in matters of life-and-death. People are not likely to be negligent or sloppy with materiel that will be indispensable in surviving life-threatening situations.

Hard controls also had a positive impact on financial and material resources management in the regression analyses. This impact disappeared, however, when the soft controls were entered into the equation. This result can be explained by the fact that the impact of hard controls on financial and material resources management is mediated by soft controls. We found evidence to support this mediation effect. Only through soft controls do hard controls come to life. This interplay has not been demonstrated empirically before, but is quite understandable. In modern societies and organizations, formal rules, regulations and procedures are indispensable, but the way they are applied and followed by managers and employees determines how and to what extent these formal instruments are influential in the organization's everyday life.

In fact, we found evidence that soft controls on their own have a positive impact on both financial and material resources management. This is a highly important and expected result that returns in virtually all of our analyses.

The results of the regression analyses demonstrate that hard controls do not have a diminishing effect on the relation between military professional culture and material resources management. Soft controls, however, have a significantly higher impact on the

perceived quality of material resources management among core military people than among civilians and supporting servicemen.

Finally, soft controls strengthen the positive relationship between hard controls and financial management¹. The impact of hard and soft controls complementing each other is larger than the impact of both foci of management control separately. This strengthening relation between hard and soft controls has not been found regarding material resources management.

To conclude, the Dutch Defence organization certainly needs soft controls to improve the quality of the financial and material resources management. Whereas hard controls are often legally enforced, this study demonstrates that the Dutch Defence organization can no longer stick to hard controls only; it has to pay serious attention to soft controls too.

8.1.3 Answering sub-question 4

Deepening the answer to the previous sub-question, with the fourth sub-question, we wanted to ascertain which of the five hard controls, *segregation of duties*, *internal auditing*, *rules and procedures*, *recording* and *risk analysis* and which of the seven soft controls, *clarity*, *congruency*, *feasibility*, *supportability*, *transparency*, *discussability* and *sanctionability* are relevant and in what mixture and intensity it could reach the largest positive impact.

Regarding the impact of the specific soft controls, the results of the multiple regression analyses showed that *congruency* has a positive impact on financial as well as material resources management. As expected, when respondents perceive leadership displaying consistency between expectations in the organization and concrete management behaviour, they also perceive the management of the financial and material resources to be more careful. *Discussability* also seems to have a positive impact on both kinds of resources management. Apparently when the respondents perceive the communication in their unit as a good balance between 'didactic' and 'real' talk creating opportunities to learn from mistakes, they also perceive the financial and material resources management to be more careful. As expected, we found no evidence that *clarity*, *feasibility* and *transparency* have a significant influence on careful financial and material resource management. Apparently the standards are clear, comprehensive and understandable to the employees of the Dutch Defence organization. It also seems that the Dutch Defence organization provides sufficient time, budgets, equipment, information, and authority to their employees to fulfil their responsibilities. Or they are so committed to their task to accomplish it even if not all conditions are met. This relates to the previously mentioned 'can-do mentality', which is exemplary for the military culture. Regarding *transparency*, it may be that respondents do not understand that there is careless management of resources. This is in line with the identified lack of cost *insight* and as a result, lack of cost *awareness* at the level of the respondents. We expected a positive impact of *supportability* on financial and material resources management but we did not find evidence to support that. We also did not find evidence for the expected curvilinear effect of

¹ Based on a quasi-significant interaction term.

sanctionability on financial management. Regarding material resources management we did find a curvilinear relationship, but in the opposite direction of what we expected. Apparently in the Dutch Defence organization, if *sanctionability* is either low or high, the perceived quality of material resources is higher than if *sanctionability* is moderately developed.

Regarding the impact of the specific hard controls on financial and material resources management, we could not find evidence to support the expected curvilinear impact of *internal auditing, recording procedures and rules* and the positive impact of *risk analysis*. We found a positive linear impact of *rules and procedures* on both financial and material resources management instead. We also found a curvilinear impact of *segregation of duties* on material resources management. However, the shape of the curvilinear relation we found was –like the soft control *sanctionability*– the opposite from what we expected.

The U-shaped relations we found, give us reason to believe that the hard control *segregation of duties* and the soft control *sanctionability* should be used with care. This means that the Dutch Defence organization should strive for the right level of intensity and realize that this might be different for the various categories of materiel. Further research is needed to understand the impact of *segregation of duties* and *sanctionability* on material resources management.

8.1.4 Answering sub-question 5

With the fifth and last sub-question of this dissertation we aimed to determine if the views of the respondents in the Dutch Defence organization can be validated with information from ‘external’ (archival) sources? This issue concerns the so-called ‘common method variance’.

First, we need to emphasize that –for reasons explained in chapter 7– the validation has been limited to sensitive material resources management only. The results of the comparison between the employee opinion and the auditor’s opinion suggest that the idea of careful management of sensitive materiel of the respondents is overall similar to the assessment of the auditors. However, there are differences between the two sources that give reason to compare the regression analyses based on the employee opinion and the regression analyses based on the auditors’ opinion of careful sensitive materiel management.

We would expect the same relations between military culture, hard controls, soft controls and sensitive material resources management, irrespective of the way this has been measured. However, this is not entirely the case.

Regarding the presumed positive impact of hard controls on sensitive material management, both analyses show that hard controls do not have a significant impact on any kind of sensitive material resources management. Both analyses also demonstrated the strengthening effect of soft controls in the relationship between hard controls and the management of ammunition.

Regarding the influence of military culture there is a partial difference between the opinion of the respondents and the auditors’ opinion. Military culture only is of significant influence

when the auditors assess the management of weapons and cryptographic equipment. When the respondents give their opinion this influence cannot be found.

Furthermore we see that the soft controls impact significantly and positively on all kinds of materiel in the employee opinion, but only on management of ammunition and overall sensitive material management in the auditors opinion. So it seems that the positive effect of soft controls (direct and indirect) is somewhat weaker when the management of sensitive materiel is assessed by the auditors.

Third, the diminishing effect of soft controls on the negative relation between military culture and sensitive material management is only shown in the management of ammunition and overall sensitive material management when assessed by the respondents. When assessed by the auditors this effect cannot be found.

Taking everything together, the analyses lead us to conclude that soft controls - and particularly soft controls in the military context - play an almost exclusive role in establishing careful sensitive material resources management, irrespective of the way this has been measured. This underlines the importance of soft controls in the Dutch Defence organization.

8.1.5 Answering the central research question

The combined outcome of the previous discussed answers to the sub-questions provides the answer to the central research question of this dissertation:

In what way do hard and soft controls influence financial and material resources management of the Dutch Defence organization?

The empirical results, based on both qualitative and quantitative sources of data, point in the same direction. The Dutch Defence organization primarily needs to implement soft controls in order to manage the financial and material resources carefully. Hard controls are important as well, but only if they are used in a more modern and sophisticated way embedded in a system of soft controls.

Zooming in on which specific hard and soft controls influence financial and material resources management of the Dutch Defence organization, we found that the soft controls *congruency* and *discussability* both have a positive impact. None of the specific hard controls have a significant influence on financial management, but the hard control *segregation of duties* has a curvilinear impact on material resources management. Apparently in the Dutch Defence organization, if *segregation of duties* is either low or high, the perceived quality of material resources is higher than if this manifestation of bureaucracy is moderately developed. These results need further examination in future studies.

8.2 Limitations and avenues for further research

During the research process a number of deliberate but also pragmatic choices have been made. These choices inevitably come with limitations. These limitations can be related to the following issues: the study's focus, the methods and sources used, the measurement of scales and the sample population. To overcome these limitations, we formulated avenues for further research.

8.2.1 Focus of the study

This study among employees of the Dutch Defence organization was conducted to find out if and in what way hard and soft controls affect financial and material resources management. The study therefore constitutes a baseline measurement for the Dutch Defence organization and an example of cross-sectional research. The advantage is that this research approach offers the possibility to gain insight into how relationships manifest themselves at one point in time, without placing significant strain on the workplace. The major disadvantage of cross-sectional research is that it does not show how relations develop in time. To meet the objection of cross-sectional research, it is recommended to replicate the measurement thereby giving the research a longitudinal character. Given the many rotations of particularly military personnel, a full replication will not be possible. Still we believe that a replication of the measurement in the Dutch Defence organization will provide additional insights into developments in the interplay between hard and soft controls and their impact on financial and material resources management.

Another way to follow up this research is by replication in other management domains within the Dutch Defence organization. The focus of this study was on careful financial and material resources management, related to the efficiency and legitimacy of the internal organization which of course is a prerequisite of organizational success. It would be interesting to study the relation between hard and soft controls and the operational effectiveness of the Dutch Defence organization. Will the same specific hard and soft controls be of significant influence on the level of readiness of units? And can the same specific hard and soft controls be related to successfulness of military operations?

8.2.2 The methods and sources used

Another limitation of this study is that the measurement of the dependent variables in the survey are subjective performance measures of financial and material resources management based on employee assessment, rather than a more objective, quantifiable measure. This may lead to biased self-reports because respondents have the tendency to answer in a socially desirable way.

However, a number of public management studies have used similar perceptual measures of performance. Additionally, there is evidence that subjective measures of performance correlate closely with objective measures. Besides that, sometimes there are good reasons why subjective measures are used. In public organizations it is very common that no

appropriate records are available and even if there are records, the data may be aggregated in an incompatible way with the level of analysis for the practices of interest.

We were able to compare and combine the commonly used subjective data with more objective data regarding *sensitive* material resources management only, thereby excluding financial management and other material resources management. To arrive at a definitive view of the common source variance in this kind of research, future studies should try to combine the subjective data with more objective data, preferably by unravelling the aggregated information generated by the newly introduced ERP-systems.

8.2.3 The measurement of scales

This study used for some of the variables scales that had already been validated in earlier research contexts. As such, we used the Corporate Ethical Virtues model of Kaptein (2008) for the measurement of the independent variable of the soft controls. For this research we made minor adjustments to the original questionnaire in order to match the different object of study.

Also the independent variable of cost awareness is measured with a validated instrument. We used the instrument of Bovier et al. (2005) that was originally developed in the healthcare sector. This instrument was translated from the English original to a Dutch version and was adapted to the military context. For two items a distinction has been made in the work floor and the executive level (leading to an increase from six to eight items). Perhaps because of these adjustments only four of the eight items together formed a reliable scale. The regression analyses did not show any significant results regarding cost awareness. This might be a measurement problem but this can also be explained by the fact that cost awareness is not that relevant to the respondents in this study who operate at relatively lower levels in the organization. This point requires attention in future studies.

Since there is no measuring instrument of military culture, in this study we used a proxy. By combining the answers to the three questions (are you military personnel or civilian?; how often have you been deployed?; which of the services are you in?) we assigned values which is an estimate for each respondent if he/she is a *core military person*, ranging from low (=civilian) to high (=special forces with extensive deployment experience). A high score means that there is more influence of the military core values within the organization culture. We have to realize that this proxy for military culture is a rough estimate for the difference between the 'hot' and the 'cold' side of the Dutch Defence organization. Several empirical results point towards influence of this military culture -especially on material resources management- but in-depth analyses did not lead to definitive findings yet. So we need further theory development and a better measurement of military culture that needs to be tested in future studies to ascertain how these mechanisms are related to one another.

Also the independent variables of the hard controls were measured with a self-developed instrument because we had not found any previous operationalization of this particular

concept. The types of hard controls were based on literature review but we wanted to make a difference in the design, existence and contribution of the hard controls. Obviously, this scale can possibly be improved in future studies.

Finally, in the absence of previous research regarding careful financial and material resources management, we used a self-developed measurement of these dependent variables based on the classification of types of resources management in the Improvement Plans of the Dutch Defence organization. We had to follow this path because at the time of this study's inception we could not find any alternatives.

8.2.4 The sample population

Another limitation arises from the fact that the data was only collected among employees in the military and for good reasons. The military is a public sector organization where matters of life and death often prevail over all other considerations that may occur in an organization. However, the findings might not be generalized and applied to employees of defence organizations in other countries. It might therefore be useful to pursue this study in defence organizations of other countries.

One could also question the generalizability of the findings to public sector workers employed in other jurisdictions (provincial, municipal, etc.) or different sectors of activity (healthcare, education, etc.). Therefore, replication in other types of organizations can be of use. In healthcare - like the military - matters of life and death often prevail over all other considerations that may occur in an organization. The almost uncontrollable and ever rising expenditure in this sector is another impetus to pursue this study in healthcare organizations. In other public organizations dominated by a professional culture, such as the Fire department and the Police, relations similar to those identified in the Dutch Defence organization can be found between culture, types of management control, and careful management of resources. It is interesting to investigate if the same specific hard and soft controls will be of significant influence in these organizations as well. This would provide further evidence for the contribution of soft controls in the management control system of public sector organizations.

8.3 Practical implications: towards a system of hard and soft controls

Soft controls

Since this study indicates that soft controls have a clear positive influence on financial and material resources management in the Dutch Defence organization, it is desirable that controllers of the Dutch Defence organization and auditors of the Central Government Audit Service include them in the design and the assessment of the total complex of controls. As a consequence this subject should be embedded in the curriculum of training and education for controllers and auditors.

We also appeal to all commanders and managers of the Dutch Defence organization, to follow this assessment of controllers and auditors carefully. But even more, we would advise them to adopt a proactive attitude which could be paid attention to in the various education programs for (future) officers and civilian personnel. Especially commanders and managers should lead by example and create an atmosphere of discussability about careful management of resources within their organization. Since there is a relation between *congruency* and *discussability*, maybe the main task of the managers and commanders in the Dutch Defence organization regarding careful resources management, should be creating conditions for sharing knowledge and encouraging people to discuss the problems they face, enabling them to learn from their mistakes. This would be in line with Fritz et al. (2013) who argue that supervisory communication, or verbal messages articulating expectations for appropriate conduct, should be in line with the supervisory behavioural modelling of those expectations.

Hard controls

The results of the interviews, the answers to the open questions in the survey, as well as the curvilinear effects regarding hard controls on material resources management give reason to investigate the possibilities of using hard controls in a more effective way. Particularly the hard controls *segregation of duties* and *rules and procedures* require special attention. We already referred to the idea of the 'enabling bureaucracy' in this connection. The different data point at the need for a rearrangement and simplification of the various elements of the hard controls-cycles and having more and also lower-ranking personnel involved in the control process. This aligns with the idea of creating more simple procedures and more complex jobs with more responsibilities (De Sitter et al., 1997: 498). Most likely the newly implemented IT-systems, especially ERP (Enterprise Resource Planning) software can play a useful role in this as well, as many interviewees believe (also see Maas et al., 2014).

Interplay between hard and soft controls

In line with the previous, this study found empirical evidence that hard controls are mediated by soft controls. Only through soft controls do hard controls come to life. This interplay is quite understandable because formal rules and procedures are indispensable, but the way they are applied and followed by managers and employees determines how and to what extent these formal instruments are effective. Implementing this vision asks for a different view on implementing hard controls implying more flexibility in the obligation to adhere to strict budgetary rules (*discussability*) and a decrease, clarification and/or simplification of rules and procedures. But also great importance needs to be given to role modelling (*congruency*) of particularly commanders.

Self-control

The idea of careful management of sensitive materiel of the respondents is overall similar to the assessment of the auditors. This pleads for the use of a self-control mechanism, as implemented in the Dutch Defence organization since 2012 regarding material resources management. However, our study shows that in 14 units (management of weapons), in

17 units (management of cryptographical equipment) and in 7 units (management of ammunition) -this is about one third of the units in our study- the assessment of the employees of that unit is more positive than the auditors' opinion. And further analyses show that when the assessment of the employees is more positive, the variation with the auditors' opinion tends to be larger. Here lies the potential danger of over optimizing or employees being unconsciously incompetent (e.g. Kruger and Dunning, 1999). Therefore it is strongly recommended that the reliability of these self-reports are periodically monitored by the Central Government Audit Service.

Military culture

Finally, we need to pay attention to the specific character of the organization which is the object of this study. Although measured with a rough estimate, both the quantitative and the qualitative results show the influence of the military professional culture. The value of the so-called 'can-do' mentality -mentioned by all commanders and 65% of the financial specialists during the interviews- cannot be overestimated in situations of immediate threat and crisis. That is why the military can go on where everybody else stops, even in the hardest circumstances. We evidenced in our study that this way of thinking also applies in peace time conditions. The soft control *feasibility* proved to be of no significance at all. Although employees mentioned insufficient education/training and IT-systems in the open questions of the survey, they apparently do not relate this lack of fulfilment of the requirements to careful financial or material resources management. Maybe the quote "*If it cannot be done the way it should, than it should be done the way it can*" says it all.

However, there may be a another side to this predominantly positive characteristic of the military culture. If 'can-do' becomes 'cannot-say-no' because loyalty, sense of duty and courage take over rationality and reason, it has gone too far. Ignoring this side of the 'can-do' mentality may produce potentially unsafe or at least suboptimal results, both in peacetime and operational situations.

Action program

Given all these practical implications of our study, one could ask to what extent intensifying the use of soft controls and using hard controls in a different way will lead to more careful management of the financial and material resources.

Therefore, it is recommended that the previous mentioned insights regarding a system of management control will be tested in the form of an action program in the Dutch Defence organization. This action program could be introduced, supervised and monitored in a number of units. These units could be compared to other, but similar units in which no action program will be executed.

References

REFERENCES

- Abernethy, M. A., & Brownell, P. (1997). Management control systems in research and development organizations: the role of accounting, behavior and personnel controls. *Accounting, Organizations and Society*, 22(3), 233-248.
- Adler, P. S., & Borys, B. (1996). Two types of bureaucracy: Enabling and coercive. *Administrative Science Quarterly*, 41(1), 61-89.
- Akkermans, D., Van Ees, H., Hermes, N., Hooghiemstra, R., Van der Laan, G., Postma, T., & Van Witteloostuijn, A. (2007). Corporate Governance in the Netherlands: An overview of the application of the Tabaksblat Code in 2004. *Corporate Governance: An International Review*, 15(6), 1106-1118.
- Allan, G. M., Lexchin, J., & Wiebe, N. (2007). Physician awareness of drug cost: A systematic review. *PLoS Medicine*, 4(9), e283, 1486-1496.
- Allison, P.D. (1998). *Multiple Regression: A Primer*. London etc.: Sage.
- Anthony, R.N. (1965). *Planning and control systems: A framework for analysis*. Boston: Division of Research. Graduate School of Business Administration. Harvard University.
- Appelbaum, S. H., Iaconi, G. D., & Matousek, A. (2007). Positive and negative deviant workplace behaviors: Causes, impacts, and solutions. *Corporate Governance: The International Journal of Business in Society*, 7(5), 586-598.
- Arvey, R. D., & Ivancevich, J. M. (1980). Punishment in organizations: A review, propositions and research suggestions. *Academy of Management Review*, 5(1), 123-132.
- Ashforth, B. E., & Anand, V. (2003). The normalization of corruption in organizations. *Research in Organizational Behavior*, 25, 1-52.
- Aven, T. (2012). Foundational issues in risk assessment and risk management. *Risk Analysis*, 32(10), 1647-1656.
- Bacharach, S. B., Bamberger, P. A., & Sonnenstuhl, W. J. (2002). Driven to drink: Managerial control, work-related risk factors, and employee problem drinking. *Academy of Management Journal*, 45(4), 637-658.
- Baker, E.L. (1980). Managing organizational culture. *Management review*, 69(7), 8-13.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, New Jersey: Prentice-Hall.

- Baron, R.M., & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Barrett, P. (2002). Achieving better practice corporate governance in the public sector. *Australian National Audit Office*.
- Bartlett, M.S. (1954). A note on the multiplying factors for various χ^2 approximations. *Journal of the Royal Statistical Society, Series B (Methodological)*, 296–298.
- Bartol, K.M., & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems. *Journal of Leadership & Organizational Studies*, 9(1), 64–76.
- Barzelay, M., & Thompson, F. (2006). Responsibility budgeting at the Air Force Materiel Command. *Public Administration Review*, 66(1), 127–138.
- Beck, N., & Kieser, A. (2003). The complexity of rule systems, experience and organizational learning. *Organization Studies*, 24(5), 793–814.
- Bedford, D.S., & Malmi, T. (2015). Configurations of control: An exploratory analysis. *Management Accounting Research*, 27, 2–26.
- Bedford, D.S., & Sandelin, M. (2015). Investigating management control configurations using qualitative comparative analysis: an overview and guidelines for application. *Journal of Management Control*, 26(1), 5–26.
- Beeres, R., Bakker, E.J. de, Bollen, M., & Westerink, E. (2012). Country Survey: An Economic Analysis Of Military Expenditures In The Netherlands. 1990–2009. *Defence and Peace Economics*, 23(4), 365–387.
- Belenky, M.F., Clinchy, B.M., Golberger, N.R., & Tarule, J.M. (1986). *Women's Ways of Knowing: The Development of Self, Voice and Mind*. New York: Basic Books.
- Bell, B.S., & Kozlowski, W.J. (2002). Goal orientation and ability: Interactive effects on self-efficacy, performance, and knowledge. *Journal of Applied Psychology*, 87(3), 497.
- Benmelech, E., & Frydman, C. (2015). Military CEOs. *Journal of Financial Economics*, 117(1), 43–59.
- Bennett, J.T., & Johnson, M.H. (1979). Paperwork and bureaucracy. *Economic Inquiry*, 17(3), 435–451.
- Bennett, R.J., & Robinson, S.L. (2000). Development of a measure of workplace deviance. *Journal of Applied Psychology*, 85(3), 349–360.

- Berger, P.L., & Luckmann, T. (1966). *The social construction of reality*. New York: Doubleday.
- Beu, D.S., Buckley, M.R., & Harvey, M.G. (2003). Ethical decision-making: A multidimensional construct. *Business Ethics: A European Review*, 12(1), 88-107.
- Bird, F.B. (1996). *The Muted Conscience: Moral silence and the practice of business ethics*. Westport, CN: Quorum Books.
- Bliese, P.D. (1998). Group size, ICC values, and group-level correlations: A simulation. *Organizational Research Methods*, 1(4), 355-373.
- Bliese, P.D., & Halverson, R.R. (1998). Group size and measures of group-level properties: An examination of eta-squared and ICC values. *Journal of Management*, 24(2), 157-172.
- Bliese, P.D., Halverson, R.R., & Schriesheim, C.A. (2002). Benchmarking multilevel methods in leadership: The articles, the model, and the data set. *The Leadership Quarterly*, 13(1), 3-14.
- Bliese, P.D., & Jex, S.M. (2002). Incorporating a multilevel perspective into occupational stress research: Theoretical, methodological, and practical implications. *Journal of Occupational Health Psychology*, 7(3), 265-276.
- Bloor, G., & Dawson, P. (1994). Understanding professional culture in organizational context. *Organization Studies*, 15(2), 275-295.
- Borgerson, J.L., Schroeder, J.E., Escudero Magnusson, M., & Magnusson, F. (2009). Corporate communication, ethics, and operational identity: A case study of Benetton. *Business Ethics: A European Review*, 18(3), 209-223.
- Bovens, M. (1998). *The Quest for Responsibility: Accountability and citizenship in complex organizations*. Cambridge: Cambridge University Press.
- Bovier, P.A., Martin, D.P., & Perneger, T.V. (2005). Cost-consciousness among Swiss doctors: A cross-sectional survey. *BMC Health Services Research*, 5(1), 72.
- Bowerman, B.L., & O'Connell, R.T. (1990). *Linear statistical models: An applied approach*. Boston, MA: PWS-Kent Publishing company.
- Boyne, G.A. (2002). Public and private management: What's the difference?. *Journal of Management Studies*, 39(1), 97-122.
- Bozeman, B. (1993). A theory of government "red tape". *Journal of Public Administration Research and Theory*, 3(3), 273-304.

- Brænder, M. (2016). Adrenalin junkies: Why soldiers return from war wanting more. *Armed Forces & Society, 42*(1), 3-25.
- Brewer, G.A. (2005). In the eye of the storm: Frontline supervisors and federal agency performance. *Journal of Public Administration Research and Theory, 15*(4), 505-527.
- Brewer, G.A., & Walker, R.M. (2013). Personnel constraints in public organizations: The impact of reward and punishment on organizational performance. *Public Administration Review, 73*(1), 121-131.
- Brigham, E.F., & Houston, J.F. (2012). *Fundamentals of financial management*. Mason, OH: South Western Cengage Learning.
- Brown, S.L., & Eisenhardt, K.M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly, 42*(1), 1-34.
- Brown, M.E., Treviño, L.K., & Harrison, D.A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes, 97*(2), 117-134.
- Brown, M.E., & Treviño, L.K. (2006). Ethical leadership: A review and future directions. *The Leadership Quarterly, 17*(6), 595-616.
- Bryman, A. (2016). *Social research methods*. Oxford: Oxford University Press.
- Buchanan, B. (1975). Red-tape and the service ethic: Some unexpected differences between public and private managers. *Administration & Society, 6*(4), 423-444.
- Burk, J. (1999). Military culture. In: Kurtz, L.R. (Ed.). *Encyclopedia of violence, peace and conflict* (pp 447-461). San Diego: Academic Press.
- Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2), 81-105.
- Chia, Y. M., & Koh, H. C. (2007). Organizational culture and the adoption of management accounting practices in the public sector: A Singapore study. *Financial Accountability & Management, 23*(2), 189-213.
- Coates, J.C. (2007). The goals and promise of the Sarbanes–Oxley Act. *The Journal of Economic Perspectives, 21*(1), 91-116.

- Cohen, A., & Sayag, G. (2010). The effectiveness of internal auditing: An empirical examination of its determinants in Israeli organisations. *Australian Accounting Review*, 20(3), 296-307.
- Coletti, A.L., Sedatole, K.L., & Towry, K.L. (2005). The effect of control systems on trust and cooperation in collaborative environments. *The Accounting Review*, 80(2), 477-500.
- Collier, J. (1995). Business ethics research: Shaping the agenda. *Business Ethics: A European Review*, 4(1), 6-12.
- Collins, J.M., & Griffin, R.W. (1998). The psychology of counterproductive job performance. In: Griffin, R.W., O'Leary-Kelly, A.E., & Collins, J.M. (Eds). *Dysfunctional behaviour in organizations: Violent and deviant behavior* (pp 219–242). Stamford, CT: JAI Press.
- Conway, J.M., & Lance, C.E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, 25(3), 325-334.
- Coram, P., Ferguson, C., & Moroney, R. (2008). Internal audit, alternative internal audit structures and the level of misappropriation of assets fraud. *Accounting & Finance*, 48(4), 543-559.
- COSO. (2004). Enterprise Risk Management Framework. Available at: <https://www.coso.org/Pages/erm-integratedframework.aspx>
- COSO. (2013). *Internal Control - Integrated Framework. Executive summary*. Committee of Sponsoring Organisations of the Treadway Commission (COSO).
- Court of Audit. (2003). *Guide for the investigation of legitimacy*.
- Court of Audit. (2006 till 2016). *Reports on the Annual Reports 2005 till 2015 of the Ministry of Defence*.
- Court of audit. (2017). Available at: <http://verantwoordingsonderzoek.rekenkamer.nl/over-dit-onderzoek/bezwaaronderzoek>.
- Craft, J.L. (2013). A review of the empirical ethical decision-making literature: 2004–2011. *Journal of Business Ethics*, 117(2), 221-259.
- Crawley, M.J. (2007). *The R book*. West-Sussex: John Wiley & Sons.
- Cropanzano, R., & Byrne, Z.S. (2001). When it's time to stop writing policies: An inquiry into procedural injustice. *Human Resource Management Review*, 11(1), 31-54.

- Dandeker, C. (1994). New times for the military: some sociological remarks on the changing role and structure of the armed forces of the advanced societies. *British Journal of Sociology*, 637-654.
- Davenport, T.H. (1998). Putting the enterprise into the enterprise system. *Harvard Business Review*, 76(4), 1-11.
- Deal, T.E. & Kennedy, A.A. (1982). *Corporate cultures: The rites and rituals of corporate life*. Reading, MA: Addison-Wesley.
- Deci, E.L., Koestner, R., & Ryan, R.M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125(6), 637-668.
- Dechow, N., & Mouritsen, J. (2005). Enterprise resource planning systems, management control and the quest for integration. *Accounting, Organizations and Society*, 30(7), 691-733.
- Department of the Army, Headquarters. (1993). *Field Manual (FM) 100-5: Operations*. Washington D.C.
- Dery, K., Grant, D., Harley, B., & Wright, C. (2006). Work, organisation and Enterprise Resource Planning systems: An alternative research agenda. *New Technology, Work and Employment*, 21(3), 199-214.
- Deshpande, S.P. (1997). Managers' perception of proper ethical conduct: The effect of sex, age, and level of education. *Journal of Business Ethics*, 16(1), 79-85.
- Detert, J.R., Treviño, L.K., Burris, E.R., & Andiappan, M. (2007). Managerial modes of influence and counterproductivity in organizations: A longitudinal business-unit-level investigation. *Journal of Applied Psychology*, 92(1), 993-1005.
- Dittenhofer, M. (2001). Internal auditing effectiveness: An expansion of present methods. *Managerial Auditing Journal*, 16(8), 443-450.
- Doty, D.H., & Glick, W.H. (1998). Common methods bias: Does common methods variance really bias results?. *Organizational Research Methods*, 1(4), 374-406.
- Drennan, L.T., McConnell, A., & Stark, A. (2015). *Risk and crisis management in the public sector*. London and New York: Routledge.
- Dunivin, K.O. (1994). Military culture: Change and continuity. *Armed Forces & Society*, 20(4), 531-547.

- Eden, D., & Moriah, L. (1996). Impact of internal auditing on branch bank performance: A field experiment. *Organizational Behavior and Human Decision Processes*, 68(3), 262-271.
- Eisenberger, R., Huntington, R., Hutchison, S. & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500-507.
- Eisenberger, R., & Shanock, L. (2003). Rewards, intrinsic motivation, and creativity: A case study of conceptual and methodological isolation. *Creativity Research Journal*, 15(2-3), 121-130.
- Eisenhardt, K.M. (1985). Control: Organizational and economic approaches. *Management Science*, 31(2), 134-149.
- Everett, J., & Tremblay, M.S. (2014). Ethics and internal audit: Moral will and moral skill in a heteronomous field. *Critical Perspectives on Accounting*, 25(3), 181-196.
- Feldman, D.S., Novack, D.H., & Gracely, E. (1998). Effects of managed care on physician-patient relationships, quality of care, and the ethical practice of medicine: A physician survey. *Archives of Internal Medicine*, 158(15), 1626-1632.
- Feldman, M.S., & Khademian, A.M. (2000). Managing for inclusion: Balancing control and participation. *International Public Management Journal*, 3(2), 149-167.
- Ferrarini, G., & Giudici, P. (2005). Financial scandals and the role of private enforcement: the Parmalat case. ECGI Law Working Paper no. 40/2005. Available at SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=730403.
- Ferreira, A., & Otley, D. (2005). The design and use of management control systems: an extended framework for analysis. *Social Science Research Network Working Paper 682984*.
- Ferreira, A., & Otley, D. (2009). The design and use of performance management systems: An extended framework for analysis. *Management Accounting Research*, 20(4), 263-282.
- Field, A. (2009). *Discovering statistics using SPSS*. London: Sage publications.
- Flamholtz, E.G. (1983). Accounting, budgeting and control systems in their organizational context: Theoretical and empirical perspectives. *Accounting, Organizations and Society*, 8(2-3), 153-169.
- Foster, J.L. (1990). Bureaucratic rigidity revisited. *Social Science Quarterly*, 71(2), 223-238.
- Fowkes, F.G.R. (1985). Doctors' knowledge of the costs of medical care. *Blackwell Publishing Medical Education*, 19(2), 113-117.

- Franke, V.C. (2001). Generation X and the military: A comparison of attitudes and values between West Point cadets and college students. *Journal of Political and Military Sociology*, 29(1), 92-119.
- Friedrich, C.J. (1935). Responsible government service under the American Constitution. In: C.J. Friedrich et al. (Eds) *Problems of the American Public Service*. New York: McGraw-Hill.
- Fritz, J.H., O'Neil, N.B., Popp, A.M., Williams, C., & Arnett, R.C. (2013). The Influence of Supervisory Behavioral Integrity on Intent to Comply with Organizational Ethical Standards and Organizational Commitment. *Journal of Business Ethics*, 114(2), 251-263.
- Funnell, W., & Wade, M. (2012). Negotiating the credibility of performance auditing. *Critical Perspectives on Accounting*, 23(6), 434-450.
- Garland, M. J. (1985). Integrating cost awareness with ethics in the undergraduate medical curriculum. *Academic Medicine*, 60(1), 44-52.
- Ganster, D.C., Hennessey, H.W., & Luthans, F. (1983). Social desirability response effects: Three alternative models. *Academy of Management Journal*, 26(2), 321-331.
- Ganz, J.S. (1971). *Rules: A systematic study*. Paris: Mouton & Co.
- Gerth, H.H., & Wright Mills, C. (1958). *From Max Weber: Essays in Sociology*. New York: Oxford University Press.
- Ghiani, G., Laporte, G., & Musmanno, R. (2004). *Introduction to logistics systems planning and control*. Chichester: John Wiley & Sons.
- Gil-Garcia, J.R., & Martinez-Moyano, I.J. (2007). Understanding the evolution of e-government: The influence of systems of rules on public sector dynamics. *Government Information Quarterly*, 24(2), 266-290.
- Gino, F., & Bazerman, M.H. (2009). When misconduct goes unnoticed: The acceptability of gradual erosion in others' unethical behavior. *Journal of Experimental Social Psychology*, 45(4), 708-719.
- Gligor, V.D., Gavrilă, S.I., & Ferraiolo, D. (1998). On the formal definition of separation-of-duty policies and their composition. In: *Proceedings IEEE Symposium on Security and Privacy*, 1998, 172-183.
- Goold, S.D., Hofer, T., Zimmerman, M., & Hayward, R.A. (1994). Measuring physician attitudes toward cost, uncertainty, malpractice, and utilization review. *Journal of General Internal Medicine*, 9(10), 544-549.

- Grabner, I., & Moers, F. (2013). Management control as a system or a package? Conceptual and empirical issues. *Accounting, Organizations and Society*, 38(6), 407-419.
- Green, S.B. (1991). How many subjects does it take to do a regression analysis. *Multivariate Behavioral Research*, 26(3), 499-510.
- Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of Management*, 16(2), 399-432.
- Greenberger, D.B., Miceli, M.P., & Cohen, D.J. (1987). Oppositionists and group norms: The reciprocal influence of whistle-blowers and co-workers. *Journal of Business Ethics*, 6(7), 527-542.
- Grindle, M.S. (1997). Divergent cultures? When public organizations perform well in developing countries. *World Development*, 25(4), 481-495.
- Groen, P., & Klinkert, W. (2003). *Studeren in uniform, 175 jaar Koninklijke Militaire Academie 1828-2003*. Den Haag: Sdu Uitgevers.
- Güner, M.F. (2008). Stakeholders' perceptions and expectations and the evolving role of internal audit. *Internal Auditing*, 23(5), 21-33.
- Haski-Leventhal, D., Roza, L., & Meijs, L.C. (2017). Congruence in corporate social responsibility: connecting the identity and behavior of employers and employees. *Journal of Business Ethics*, 143(1), 35-51.
- Haggett, P. (1975). *Geography: A Modern Synthesis*. New York: Harper & Row.
- Hall, J.A. (2011). *Accounting information systems*. Mason, OH: Cengage Learning.
- Hall, R.H. (1968). Professionalization and bureaucratization. *American Sociological Review*, 33(1), 92-104.
- Hamid, K.T. (2013). *Good Governance and New Public Sector Financial Management Reform in Nigeria*. Paper presentation Executive Mandatory Professional Training Programme for Fellows of the Chartered Institute of Finance and Control of Nigeria (CIFCN), 15th and 16th June, 2013. Available at: <http://www.academia.edu>.
- Hardy, C., Lawrence, T.B., & Grant, D. (2005). Discourse and collaboration: The role of conversations and collective identity. *Academy of Management Review*, 30(1), 58-77.
- Harrison, R. (1972). Understanding your organisation's character. *Harvard Business Review*, 50(3), 119-128.

- Hart, J., Salman, H., Bergman, M., Neuman, V., Rudniki, C., Gilenberg, D., ... Djaldetti, M. (1997). Do drug costs affect physicians' prescription decisions? *Journal of Internal Medicine*, 241(5), 415-420.
- Hartmann, F., & Slapničar, S. (2009). How formal performance evaluation affects trust between superior and subordinate managers. *Accounting, Organizations and Society*, 34(6), 722-737.
- Hayes, S.C. (Ed.). (1989). *Rule-governed behavior: Cognition, contingencies, and instructional control*. New York: Plenum Press.
- Heeren-Bogers, J., Kaptein, M.C., & Soeters, J.M.M.L. (2013). De harde noodzaak van soft-controls. Een onderzoek naar zorgvuldig financieel en materieel beheer bij defensie. [The hard necessity of soft-controls. Research of careful financial and material resources management of the military/translation JHB]. *Maandblad voor Accountancy en Bedrijfseconomie*, 87(5), 185-197.
- Heeren-Bogers, J., & Soeters, J. (2016). Improving the Management Control Mix for Safety and Security. In: R. Beeres et al. (Eds.), *NL ARMS Netherlands Annual Review of Military Studies 2016* (pp 291-308). The Hague: TMC Asser Press.
- Henle, C.A. (2005). Predicting workplace deviance from the interaction between organizational justice and personality. *Journal of Managerial Issues*, 17(2), 247-263.
- Hernu, R., Cour, M., de la Salle, S., Robert, D., & Argaud, L. (2015). Cost awareness of physicians in intensive care units: A multicentric national study. *Intensive Care Medicine*, 41(8), 1402-1410.
- Hofstede, G. (1980). *Culture's consequences: National differences in thinking and organizing*. Beverly Hills, CA: Sage.
- Hofstede, G., Neuijen, B., Ohayv, D.D., & Sanders, G. (1990). Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative Science Quarterly*, 35(2), 286-316.
- Hou, Y. (2007). Putting money where the need is: Managing the finances of state and local governments. In: P.W. Ingraham (Ed.), *Pursuit of performance: Management systems in state and local government* (pp 15-56). Baltimore: John Hopkins University Press.
- Huntington, S.P. (1957). *The soldier and the state: The theory and politics of civil-military relations*. Cambridge: Harvard University Press.
- Jackson, M. (2009). Responsibility versus accountability in the Friedrich-Finer debate. *Journal of Management History*, 15(1), 66-77.

- Jacobs, K., Marcon, G., & Witt, D. (2004). Cost and performance information for doctors: An international comparison. *Management Accounting Research*, 15(3), 337-354.
- Jakobsen, M., & Jensen, R. (2015). Common method bias in public management studies. *International Public Management Journal*, 18(1), 3-30.
- Jaques, E. (1951). *The changing culture of a factory*. London: Tavistock Publications.
- Jennings Jr, E.T., & Ewalt, J.A.G. (1998). Interorganizational coordination, administrative consolidation, and policy performance. *Public Administration Review*, 58(5), 417-428.
- Jenkins Jr., G.D., Mitra, A., Gupta, N., & Shaw, J.D. (1998). Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology*, 83(5), 777-787.
- Johns, G. (1994). How often were you absent—A review of the use of self-reported absence data. *Journal of Applied Psychology*, 79(4), 574-591.
- Johnston, M. (2012). Corruption control in the United States: Law, values, and the political foundations of reform. *International Review of Administrative Sciences*, 78(2), 329-345.
- Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36.
- Kallunki, J.P., Laitinen, E.K., & Silvola, H. (2011). Impact of enterprise resource planning systems on management control systems and firm performance. *International Journal of Accounting Information Systems*, 12(1), 20-39.
- Kaplan, S., & Garrick, B.J. (1981). On the quantitative definition of risk. *Risk analysis*, 1(1), 11-27.
- Kaplan, R.S., & Norton, D.P. (1992). Balanced scorecard – measures that drive performance. *Harvard Business Review*, 70(1), 71-79.
- Kaptein, M. (1998). *Ethics management: Auditing and developing the ethical content of organizations*. Dordrecht: Springer.
- Kaptein, M. (2008). Developing and testing a measure for the ethical culture of organizations: The corporate ethical virtues model. *Journal of Organizational Behavior*, 29(7), 923-947.
- Kaptein, M. (2011a). Understanding unethical behavior by unraveling ethical culture. *Human Relations*, 64(6), 843-869.

- Kaptein, M. (2011b). From inaction to external whistleblowing: The influence of the ethical culture of organizations on employee responses to observed wrongdoing. *Journal of Business Ethics*, 98(3), 513-530.
- Kaptein, M. (2017). When organizations are too good: Applying Aristotle's doctrine of the mean to the corporate ethical virtues model. *Business Ethics: A European Review*, 26(3), 1-12.
- Katz-Navon, T.A.L., Naveh, E., & Stern, Z. (2005). Safety climate in health care organizations: A multidimensional approach. *Academy of Management Journal*, 48(6), 1075-1089.
- Keating, E.K., Fischer, M., Gordon, T.P., & Greenlee, J.S. (2005). The single audit act: How compliant are nonprofit organizations? *Journal of Public Budgeting, Accounting and Financial management*, 17(3), 285-309.
- Kennedy, P. (1992). *A guide to econometrics*. Oxford: Blackwell.
- Kim, Y., & Choi, Y. (2003). Ethical standards appear to change with age and ideology: A survey of practitioners. *Public Relations Review*, 29(1), 79-89.
- Klein, K.J., Bliese, P.D., Kozlowski, S.W., Dansereau, F., Gavin, M.B., Griffin, M.A., ... Bligh, M.C. (2000). Multilevel analytical techniques: Commonalities, differences, and continuing questions. In: K.J. Klein & S.W.J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions* (pp. 512-553). San Francisco, CA: Jossey-Bass.
- Kozlowski, S.W.J., & Klein, K.J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In: K.J. Klein & S.W.J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.
- Koontz, H., & Weihrich, H. (2010). *Essentials Of Management*. New Delhi: Tata McGraw-Hill Education.
- Kotter, J.P., & Heskett, J.L. (1992). *Corporate Culture and Performance*. New York: Freepress.
- Kottke, J.L., & Sharafinski, C.E. (1988). Measuring perceived supervisory and organizational support. *Educational and Psychological Measurement*, 48(4), 1075-1079.
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology*, 77(6), 1121-1134.
- Kutner, M.H., Nachtsheim, C.J., Neter, J., & Li, W. (2005). *Applied linear statistical models*. New York: Mc Graw-Hill/Irwin.

- Lang, K. (1965). Military organizations. In: J.G. March (Ed.), *Handbook of organizations* (pp 838-878). Chicago: Rand McNally.
- Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations and Society*, 22(2), 207-232.
- Lepper, M.R., Greene, D., & Nisbett, R.E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology*, 28(1), 129-137.
- Liedtka, J.M. (1996). Feminist morality and competitive reality: A role for an ethic of care?. *Business Ethics Quarterly*, 6(02), 179-200.
- Locke, E.A., & Latham, G.P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American psychologist*, 57(9), 705.
- Louis, M.R. (1980). Surprise and sensemaking: What newcomers experience in entering unfamiliar organizational settings. *Administrative Science Quarterly*, 25(2), 226-251.
- Maas, J.B., Fenema, P.C., & Soeters, J. (2014). ERP system usage: The role of control and empowerment. *New Technology, Work and Employment*, 29(1), 88-103.
- Ma'ayan, Y., & Carmeli, A. (2016). Internal audits as a source of ethical behavior, efficiency, and effectiveness in work units. *Journal of Business Ethics*, 137(2), 347.
- Malmi, T., & Brown, D.A. (2008). Management control systems as a package—Opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287-300.
- Martinko, M.J., Gundlach, M.J., & Douglas, S.C. (2002). Toward an integrative theory of counterproductive workplace behavior: A causal reasoning perspective. *International Journal of Selection and Assessment*, 10(1-2), 36-50.
- Masuch, M. (1985). Vicious circles in organizations. *Administrative Science Quarterly*, 30(1), 14-33.
- Meier, K.J., & O'Toole Jr., L.J. (2013a). Subjective organizational performance and measurement error: Common source bias and spurious relationships. *Journal of Public Administration Research and Theory*, 23(2), 429-456.
- Meier, K.J., & O'Toole Jr., L.J. (2013b). I think (I am doing well), therefore I am: Assessing the validity of administrators' self-assessments of performance. *International Public Management Journal*, 16(1), 1-27.

- Merchant, K.A. (1982). The control function of management. *Sloan management review*, 23(4), 43-55.
- Merchant, K.A., & Van der Stede, W.A. (2012). *Management control systems: Performance measurement, evaluation and incentives*. Harlow: Pearson Education.
- Meyer, J.P., Stanley, D.J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behaviour*, 61(1), 20-52.
- Meyer, M.W., Zucker, L.G., & DiMaggio, P. (1989). *Permanently failing organizations*. Newbury Park, etc.: Sage.
- Mickel, A.E., & Barron, L.A. (2008). Getting “more bang for the buck” symbolic value of monetary rewards in organizations. *Journal of Management Inquiry*, 17(4), 329-338.
- Miles, M.B., Huberman, A.M., & Saldanā, J. (2014). *Qualitative data analysis. A methods sourcebook*. Newbury Park, CA: Sage.
- Ministry of Defence. (2007). Code of Conduct. Available at: <http://www.rijksoverheid.nl/ministeries/def/documenten-en-publicaties/kamerstukken/2007/04/04/kamerbrief-tweede-rapportage-staal.html>
- Ministry of Defence, Central Staff, Head Direction Finance and Control (2009a). *Meerjarig Verbeterplan Financieel Beheer [Improvement Plan Financial Management/translation JHB]*. Status definitief, 17 maart 2009
- Ministry of Defence, Central Staff, Defence Materiel Organisation (2009b). *Geef materieelbeheer de aandacht die het verdient! [Give material resources management the deserved attention!]* translation JHB] Status definitief, 12 maart 2009.
- Ministry of Defence, Central Staff, Defence Materiel Organisation/Department of Materiel Policy (2009c). *Voorschrift Materieelbeheer Defensie [Regulation of Material Resources Management/translation JHB]*. Status definitief, versienummer: 2.0.0, 16 juni 2009.
- Ministry of Defence. (2017). <http://www.defensie.nl/english/organisation>
- Mintzberg, H. (1983). *Structure in fives: Designing effective organizations*. Englewood Cliffs, NJ Prentice-Hall.
- Moelker, R., & Soeters, J.M.M.L. (1998). Democratization of recruitment. On the social origin of cadets. In: G. Caforio (Ed.), *The European cadet. Professional socialisation in military academies. a cross-national study* (pp 121-135). Baden-Baden: Nomos Verlagsgesellschaft.

- Mouthaan, E.H.J. (2007). De balans tussen regels en waarden. [The balance between rules and values/translation JHB]. *Maandblad voor Accountancy en Bedrijfseconomie*, 81(12), 600-607.
- Morgeson, F.P., Delaney-Klinger, K., & Hemingway, M.A. (2005). The importance of job autonomy, cognitive ability, and job-related skill for predicting role breadth and job performance. *Journal of Applied Psychology*, 90(2), 399-406.
- Moynihan, D.P., & Pandey, S.K. (2007). The role of organizations in fostering public service motivation. *Public Administration Review*, 67(1), 40-53.
- Murray, W. (1999). Does military culture matter?. *Orbis*, 43(1), 27-42.
- Near, J.P., & Miceli, M.P. (1985). Organizational dissidence: The case of whistleblowing. *Journal of Business Ethics*, 4(1), 1-16
- Near, J.P., & Miceli, M.P. (1995). Effective whistle-blowing. *Academy of Management Review*, 20(3), 679-708.
- Near, J.P., Rehg, M.T., Van Scotter, J.R., & Miceli, M. P. (2004). Does type of wrongdoing affect the whistle-blowing process? *Business Ethics Quarterly*, 14(2), 219-242.
- Ng, E.H., & Kim, H.W. (2009). Investigating Information systems infusion and the moderating role of habit: A user empowerment perspective. *ICIS 2009 Proceedings*, paper 137.
- Nickell, E.B., & Roberts, R.W. (2014). Organizational legitimacy, conflict, and hypocrisy: An alternative view of the role of internal auditing. *Critical Perspectives on Accounting*, 25(3), 217-221.
- Nicolaou, A.I. (2004). Quality of postimplementation review for enterprise resource planning systems. *International Journal of Accounting Information Systems*, 5(1), 25-49.
- Nixon, W.A., & Burns, J. (2005). Management control in the 21st century. *Management Accounting Research*, 16(3), 260-268.
- Norman, R. (2002). Managing through measurement or meaning? Lessons from experience with New Zealand's public sector performance management systems. *International Review of Administrative Sciences*, 68(4), 619-628.
- Nowak, M. (2011). *SuperCooperators. evolution, altruism and human behavior or why we need each other to succeed*. Edinburg, etc.: Cannongate.
- Oldham, G.R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39(3), 607-634.

- O'Leary, K.D., & Drabman, R. (1971). Token reinforcement programs in the classroom: A review. *Psychological Bulletin*, 75(6), 379-398.
- Otley, D.T. (1980). The contingency theory of management accounting: Achievement and prognosis. *Accounting, Organizations and Society*, 5(4), 413-428.
- Ouchi, W.G. (1979). A conceptual framework for the design of organizational control mechanisms. *Management Science*, 25(9), 833-848.
- Ouchi, W.G. (1981). Theory Z: How American business can meet the Japanese challenge. *Business Horizons* 24(6), 82-83.
- Paape, L., & Speklè, R.F. (2012). The adoption and design of enterprise risk management practices: An empirical study. *European Accounting Review*, 21(3), 533-564.
- Pandey, S.K., Coursey, D.H., & Moynihan, D.P. (2004). *Management capacity and organizational performance: Can organizational culture trump bureaucratic red tape*. Paper presentation at the Determinants of Performance in Public Organizations: Advancing Knowledge in Public Management Conference, Cardiff University, Wales.
- Paulhus, D.L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, 46(3), 598-609.
- Perrow, C. (1986). *Complex organizations: A critical essay*. New York: Random House.
- Perry, J.L., & Wise, L.R. (1990). The motivational bases of public service. *Public Administration Review*, 50(3), 367-373.
- Perry, J.L., Engbers, T.A., & Jun, S.Y. (2009). Back to the future? Performance related pay, empirical research, and the perils of persistence. *Public Administration Review*, 69(1), 39-51.
- Peters, T.J., Waterman, R.H., & Jones, I. (1982). *In search of excellence: Lessons from America's best-run companies*. New York: Harper & Row.
- Petrovits, C., Shakespeare, C., & Shih, A. (2011). The causes and consequences of internal control problems in nonprofit organizations. *The Accounting Review*, 86(1), 325-357.
- Pitts, D. (2009). Diversity management, job satisfaction, and performance: Evidence from US federal agencies. *Public Administration Review*, 69(2), 328-338.
- Podsakoff, P.M., & Organ, D.W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531-544.

- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.
- Posner, B.Z. (2010). Another look at the impact of personal and organizational values congruency. *Journal of Business Ethics, 97*(4), 535-541.
- Quratulain, S., & Khan, A.K. (2015). Red tape, resigned satisfaction, public service motivation, and negative employee attitudes and behaviors: Testing a model of moderated mediation. *Review of Public Personnel Administration, 35*(4), 307-332.
- Rainey, H.G., & Steinbauer, P. (1999). Galloping elephants: Developing elements of a theory of effective government organizations. *Journal of Public Administration Research and Theory, 9*(1), 1-32.
- Randall, D.M., & Fernandes, M.F. (1991). The social desirability response bias in ethics research. *Journal of Business Ethics, 10*(11), 805-817.
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology, 87*(4), 698-714.
- Richardson, H.A., Simmering, M.J., & Sturman, M.C. (2009). A tale of three perspectives: Examining post hoc statistical techniques for detection and correction of common method variance. *Organizational Research Methods, 12*(4), 762-800.
- Robinson, S.L., & Bennett, R.J. (1995). A typology of deviant workplace behaviors: A multidimensional scaling study. *Academy of Management Journal, 38*(2), 555-572.
- Rom, A., & Rohde, C. (2007). Management accounting and integrated information systems: A literature review. *International Journal of Accounting Information Systems, 8*(1), 40-68.
- Roth, J. (1998). A hard look at soft controls. *Internal Auditor, 55*(1), 30-33.
- Rothwell, G.R., & Baldwin, J.N. (2007). Ethical climate theory, whistle-blowing, and the code of silence in police agencies in the state of Georgia. *Journal of Business Ethics, 70*(4), 341-361.
- Ruiz-Palomino, P., & Martinez-Cañas, R. (2011). Supervisor role modelling, ethics-related organizational policies, and employee ethical intention: The moderating impact of moral ideology. *Journal of Business Ethics, 102*(4), 653-668.
- Sackmann, S.A. (1989). The framers of culture: The conceptual views of anthropology, organizational theory, and management. In: *Academy of Management Annual Meeting, Washington, August* (Vol. 12).

- Sackmann, S.A. (1992). Culture and subcultures: An analysis of organizational knowledge. *Administrative Science Quarterly*, 37(1), 140-161.
- Samnani, A.K., Salamon, S.D., & Singh, P. (2014). Negative affect and counterproductive workplace behavior: The moderating role of moral disengagement and gender. *Journal of Business Ethics*, 119(2), 235-244.
- Samuelson, P.A. (1954). The pure theory of public expenditure. *The Review of Economics and Statistics*, 36(4), 387-389.
- Sapienza, A. M. (1986). Believing is seeing: How organizational culture influences the decisions top managers make. In: R.H. Kilmann, M.J. Saxton, & R. Serpa (Eds.), *Gaining Control of the Corporate Culture* (pp 66-83). San Francisco: Jossey-Bass.
- Sathe, V. (1983). Implications of corporate culture: A manager's guide to action. *Organizational dynamics*, 12(2), 5-23.
- Schaubroeck, J.M., Hannah, S.T., Avolio, B.J., Kozlowski, S.W., Lord, R.G., Treviño, L.K., ... Peng, A.C. (2012). Embedding ethical leadership within and across organization levels. *Academy of Management Journal*, 55(5), 1053-1078.
- Schein, E.H. (1984). Coming to a new awareness of organizational culture. *Sloan Management Review*, 25(2), 3-16.
- Schein, E.H. (1985). *Organizational culture and leadership*. San Fransisco: Jossey-Bass.
- Schweitzer, M.E., Ordóñez, L., & Douma, B. (2004). Goal setting as a motivator of unethical behavior. *Academy of Management Journal*, 47(3), 422-432.
- Scott, P.G., & Pandey, S.K. (2005). Red tape and public service motivation findings from a national survey of managers in state health and human services agencies. *Review of Public Personnel Administration*, 25(2), 155-180.
- Seibel, W. (1996). Successful failure: An alternative view on organizational coping. *American Behavioral Scientist*, 39(8), 1011-1024.
- Sekerka, L.E., Bagozzi, R.P., & Charnigo, R. (2009). Facing ethical challenges in the workplace: Conceptualizing and measuring professional moral courage. *Journal of Business Ethics*, 89(4), 565-579.
- Senge, P.M. (1990). *The fifth discipline. The art & practice of the learning organization*. New York: Doubleday Currence.

- Shang, S., & Seddon, P.B. (2002). Assessing and managing the benefits of enterprise systems: The business manager's perspective. *Information Systems Journal*, 12(4), 271-299.
- Shore, L.M., & Shore, T.H. (1995). Perceived organizational support and organizational justice. In: R.S. Cropanzano & K.M. Kacmar (Eds.), *Organizational politics, justice, and support: Managing the social climate of the workplace* (pp 149–164). Westport, CT: Quorum.
- Simons, R. (1995). *Levers of control: How managers use innovative control systems to drive strategic renewal*. Boston: Harvard Business School Press.
- Simons, T. (2002). Behavioral integrity: The perceived alignment between managers' words and deeds as a research focus. *Organization Science*, 13(1), 18-35.
- Sims, R.R., & Brinkman, J. (2002). Leaders as moral role models: The case of John Gutfreund at Salomon Brothers. *Journal of Business Ethics*, 35(4), 327-339.
- Singleton, R., & Straits, B. (2005). *Approaches to social research*. New York: Oxford University Press.
- Sitkin, S.B., & Roth, N.L. (1993). Explaining the limited effectiveness of legalistic "remedies" for trust/distrust. *Organization Science*, 4(3), 367-392.
- Sitter, de L.U., Den Hertog, J.F., & Dankbaar, B. (1997). From complex organizations with simple jobs to simple organizations with complex jobs. *Human Relations*, 50(5), 497-534.
- Six, F., & Lawton, A. (2013). Towards a theory of integrity systems: a configurational approach. *International Review of Administrative Sciences*, 79(4), 639-658.
- Steele Jr., D.A. (2005). Icarus and American corporate regulation. *The Business Lawyer*, 61(1), 155-177.
- Smircich, L. (1983). Concepts of culture and organizational analysis. *Administrative Science Quarterly*, 28, 339-358.
- Smith-Crowe, K., Tenbrunsel, A.E., Chan-Serafin, S., Brief, A.P., Umphress, E.E., & Joseph, J. (2015). The ethics "fix": When formal systems make a difference. *Journal of Business Ethics*, 131(4), 791-801.
- Snider, D. M. (1999). An uninformed debate on military culture. *Orbis*, 43(1), 11-26.
- Sobel, M.E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology*, 13, 290-312.

- Soeters, J.L. (1997). Value orientations in military academies: A thirteen country study. *Armed Forces & Society*, 24(1), 7-32.
- Soeters, J. (2000). Culture in uniformed organizations. In: N.M. Ashkanasy, C.P.M. Wilderom, & M.F. Peterson (Eds.) *Handbook of Organizational Culture and Climate* (pp 465-481). Thousand Oaks, etc.: Sage.
- Soeters, J. (2017 forthcoming). Organizational cultures in the military. In: G. Caforio & M. Nuciari (Eds.) *Handbook of the Sociology of the Military* (to be determined). New York: Kluwer.
- Soeters, J.L., Winslow, D.J., & Weibull, A. (2006). Military culture. In: G. Caforio (Ed.), *Handbook of the Sociology of the Military* (pp 237-254). New York, Philadelphia: Springer US.
- Soeters, J., & Recht, R. (1998). Culture and discipline in military academies: An international comparison. *Journal of Political and Military Sociology*, 26(2), 169-189.
- Soeters, J.M.M.L., Van Fenema, P.C., & Beeres, R. (2010). Introducing military organizations. In: J. Soeters, P.C. Van Fenema, & R. Beeres (Eds.). *Managing military organisations: Theory and practice*, (pp 1-14). London and New York: Routledge.
- Solomon, R.C. (1992). *Ethics and excellence*. New York: Oxford University Press.
- Solomon, R.C. (1999). *A better way to think about business: How personal integrity leads to corporate success*. New York: Oxford University Press.
- Solomon, R.C. (2000). Business with virtue: Maybe next year. *Business Ethics Quarterly*, 10(1), 319-331.
- Solomon, R.C. (2004). Aristotle, ethics and business organizations. *Organization Studies*, 25(6), 1021-1043.
- Spacie, K. (2001). Mission Command in Peace Support Operations: Does it Apply? In: P. Essens, A. Vogelaar, E. Tanercan, and D. Winslow (Eds.) *The Human in Command: Peace Support Operations* (pp 205-211). Amsterdam/Breda: Mets & Schilt/KMA.
- Spector, P.E., Bauer, J.A., & Fox, S. (2010). Measurement artifacts in the assessment of counterproductive work behavior and organizational citizenship behavior: Do we know what we think we know?. *Journal of Applied Psychology*, 95(4), 781-790.
- Spector, P.E., Fox, S., Penney, L.M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counterproductivity: Are all counterproductive behaviors created equal?. *Journal of Vocational Behavior*, 68(3), 446-460.

- Speklé, R.F., Van Elten, H.J., & Kruis, A.M. (2007). Sourcing of internal auditing: An empirical study. *Management Accounting Research*, 18(1), 102-124.
- Spira, L.F., & Page, M. (2003). Risk management: The reinvention of internal control and the changing role of internal audit. *Accounting, Auditing & Accountability Journal*, 16(4), 640-661.
- Stevens, J.P. (2002). *Applied multivariate statistics for the social sciences*. Hillsdale, NJ: Erlbaum.
- Stevenson, H.N.C. (1954). Status evaluation in the Hindu caste system. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, 84(1/2), 45-65.
- Strauß, E., & Zecher, C. (2013). Management control systems: A review. *Journal of Management Control*, 23(4), 233-268.
- Tabachnick, B.G., & Fidell, L.S. (1996). *Using Multivariate Statistics* (3th ed.). New York: Harper Collins.
- Tessier, S., & Otley, D. (2012). A conceptual development of Simons' Levers of Control framework. *Management Accounting Research*, 23(3), 171-185.
- Traxler, R.N. (1961). A model of modern administrative organization: The German General Staff. *Academy of Management Journal*, 4(2), 108-114.
- Treviño, L.K. (1986). Ethical decision making in organizations: A person-situation interactionist model. *Academy of Management Review*, 11(3), 601-617.
- Treviño, L.K., Gibson, D.G., Weaver, G.R., & Toffler, B.L. (1999). Managing ethics and legal compliance: What works and what hurts. *California Management Review*, 41(2), 131-151.
- Treviño, L.K., Hartman, L.P., & Brown, M. (2000). Moral person and moral manager: How executives develop a reputation for ethical leadership. *California Management Review*, 42(4), 128-142.
- Treviño, L.K., Weaver, G.R., & Reynolds, S.J. (2006). Behavioral ethics in organizations: A review. *Journal of Management*, 32(6), 951-990.
- Tyler, T.R., & Blader, S.L. (2005). Can businesses effectively regulate employee conduct? The antecedents of rule following in work settings. *Academy of Management Journal*, 48(6), 1143-1158.
- US Department of Defense. (2005). *Dictionary of Military and Associated Terms*.

- Vandenabeele, W. (2007). Toward a public administration theory of public service motivation: An institutional approach. *Public Management Review*, 9(4), 545-556.
- Vink, H.J., & Kaptein, M. (2008). Soft controls bij de Rijksoverheid. De oorzaken van rechtmatigheidsfouten onderzocht. *Maandblad voor Accountancy en Bedrijfseconomie*, 80(6), 256-262.
- Vinten, G. (2001). Corporate governance and the sons of Cadbury. *Corporate Governance: The International Journal of Business in Society*, 1(4), 4-8.
- Vlaar, P.W., Van den Bosch, F.A., & Volberda, H.W. (2006). Coping with problems of understanding in interorganizational relationships: Using formalization as a means to make sense. *Organization Studies*, 27(11), 1617-1638.
- Vogelaar, A.L., & Kramer, E.H. (2004). Mission command in Dutch peace support missions. *Armed Forces & Society*, 30(3), 409-431.
- Waard, E.J. (2010, January 22). *Engaging Environmental Turbulence* (No. EPS-2010-189-STR). ERIM Ph.D. Series Research in Management. Erasmus Research Institute of Management. Retrieved from <http://hdl.handle.net/1765/18012>.
- Walker, R.M., & Boyne, G.A. (2006). Public management reform and organizational performance: An empirical assessment of the UK Labour government's public service improvement strategy. *Journal of Policy Analysis and Management*, 25(2), 371-393.
- Wall, T.D., Michie, J., Patterson, M., Wood, S.J., Sheehan, M., Clegg, C.W., & West, M. (2004). On the validity of subjective measures of company performance. *Personnel Psychology*, 57(1), 95-118.
- Weber, M. (1968). *Economy and Society. An outline of interpretative sociology*, Volumes 1-3. New York: Bedminster Press.
- Weber, J., & Gerde, V.W. (2011). Organizational role and environmental uncertainty as influences on ethical work climate in military units. *Journal of Business Ethics*, 100(4), 595-612.
- Weibel, A., Den Hartog, D.N., Gillespie, N., Searle, R., Six, F., & Skinner, D. (2016). How do controls impact employee trust in the employer?. *Human Resource Management*, 55(3), 437-462.
- Welsh, D.T., & Ordóñez, L.D. (2014). The dark side of consecutive high performance goals: Linking goal setting, depletion, and unethical behavior. *Organizational Behavior and Human Decision Processes*, 123(2), 79-89.

- Wilkins, A.L. (1983). The culture audit: A tool for understanding organizations. *Organizational Dynamics*, 12(2), 24-38.
- Wilkins, A.L., & Ouchi, W.G. (1983). Efficient cultures: Exploring the relationship between culture and organizational performance. *Administrative Science Quarterly*, 28(3), 468-481.
- Wilson, A.M. (1997). The nature of corporate culture within a service delivery environment. *International Journal of Service Industry Management*, 8(1), 87-102.
- Wilson, A.M. (2001). Understanding organisational culture and the implications for corporate marketing. *European Journal of Marketing*, 35(3/4), 353-367.
- Wilson, J.Q. (1989). *Bureaucracy: What government agencies do and why they do it*. New York: Basic Books.
- Wilson, P.H. (2008). Defining military culture. *The Journal of Military History*, 72(1), 11-41.
- Woods, M. (2009). A contingency theory perspective on the risk management control system within Birmingham City Council. *Management Accounting Research*, 20(1), 69-81.
- Wright, B.E. (2001). Public-sector work motivation: A review of the current literature and a revised conceptual model. *Journal of Public Administration Research and Theory*, 11(4), 559-586.
- Wright, B.E. (2007). Public service and motivation: Does mission matter?. *Public Administration Review*, 67(1), 54-64.
- Yukl, G.A. (2012). *Leadership in Organizations*. New Jersey: Prentice-Hall.
- Zenger, T.R., Lazzarini, S.G., & Poppo, L. (2002). Informal and formal organization in new institutional economics. In: P. Ingram and B.S. Silverman (Eds.) *The new institutionalism in strategic management* (pp. 277-305). Amsterdam: Elsevier Science.

Summary

SUMMARY

This study investigates the management control system of the Dutch Defence organization by focusing on the influence of the various sorts of formal, hard controls and informal, soft controls on financial and material resources management. Given the specific context of this study, indications of professional culture and cost awareness add to the general understanding of management control, its antecedents and its impact. This study particularly aims to explore and explain differences in perceived quality (=carefulness) of financial and material resources management.

The study applies a research design consisting of blended methodologies: survey research with a sample of 220 respondents in the field of financial management and a sample of 170 respondents in the domain of material resources management, next to 23 semi-structured interviews and 114 archived audit reports. Given the blended methodological approach, this study has added academic value because previous studies oftentimes make use of either qualitative or quantitative data. This study also serves a practical goal, by gaining insight in the underlying managerial problems in the Dutch Defence organization (Court of Audit, 2006 till 2016), which so far have hindered the careful use of financial and material resources.

The study's central research question is:

In what way do hard and soft controls influence financial and material resources management of the Dutch Defence organization?

By answering the first sub-question, we provided a theoretical background regarding the relations between military professional culture, cost awareness, hard and/or soft controls and financial and material resources management. The empirical results are summarized on the basis of the next four sub-questions.

What are the various internal stakeholders and do these stakeholders differ in their views of management of financial and material resources in the Dutch Defence organization?

By analysing the interviews with commanders and financial specialists and examining the answers to the open questions in the survey, the impression emerges that management control is a matter of both hard and soft controls. The findings indicate that improvement in hard controls, especially *rules and procedures, internal auditing and recording* predominantly can be found in modernizing the control procedures in such a way that they align with new ideas concerning the so-called 'enabling' bureaucracy (Adler and Borys, 1996). At the same time improvement in soft controls relates to the need of making the people in the organization more aware of the fact that everything needs to be paid for, that equipment should always be accounted for and that time is precious. Frequently mentioned, in the interviews as well as in the answers to the open questions, were the soft controls *congruency* and *discussability*. A feature of the military culture that frequently came forward in the interviews was the

so-called 'can-do' mentality. In situations of immediate threat and crisis, the value of this attitude cannot be overestimated according to the interviewees.

Based on a number of statistical analyses of the survey data, it appears that the commanders assess the financial management to be significantly more careful than other stakeholders do. Regarding material resources management the assessment of the various stakeholders did not deviate significantly from each other. The cost awareness of the commanders and also the financial specialists proved to be significantly higher than the cost awareness of the other respondents. The financial and logistic specialists indicated a higher awareness of the design, existence and contribution of the hard controls compared to employees with responsibilities in financial or material resources management. There were no deviating results in the assessment of the soft controls.

Which kind of controls, hard and/or soft, are more effective in managing the financial and material resources of the Dutch Defence organization?

The multiple regression analyses conducted with the data from the large-scale surveys did not provide evidence for the expected mediation effect of cost awareness in the relation between military professional culture and financial and material resources management. Cost awareness has no significant effect on financial or material resources management at all. This can possibly be explained by the fact that cost awareness is not that relevant to the respondents in this study who operate at a relatively lower level in the organization while budgets and financial consequences are assigned to a higher level in the organization.

Military culture proved to be of no significant influence on financial management. However, regarding material resources management we found that if the military professional culture dominates in an organizational unit, the quality of the material resources management is perceived to be significantly better. This direct impact of the military professional culture is not in accordance with what was expected in the first place, but can easily be explained. Military people – particularly those in action - depend on their military gear, such as helmets, flak jackets, weaponry or vehicles.

Hard controls also had a positive impact on financial and material resources management in the regression analyses. This impact disappeared, however, when the soft controls were entered into the equation. This result can be explained by the fact that the impact of hard controls on financial and material resources management is mediated by soft controls. We found evidence to support this mediation effect. Only through soft controls do hard controls come to life. We also found evidence that soft controls on their own have a positive impact on both financial and material resources management.

Which specific hard and soft controls in what intensity are effective in managing the financial and material resources of the Dutch Defence organization?

Regarding the impact of the specific soft controls, the results of the multiple regression analyses showed that *congruency* has a positive impact on financial as well as material resources management. As expected, when respondents perceive leadership displaying consistency between expectations in the organization and concrete management behaviour, they also perceive the management of the financial and material resources to be more careful. *Discussability* also seems to have a positive impact on both kinds of resources management. Apparently when the respondents perceive the communication in their unit as a good balance between 'didactic' and 'real' talk creating opportunities to learn from mistakes, they also perceive the financial and material resources management to be more careful. As expected, we found no evidence that the soft controls *clarity*, *feasibility* and *transparency* have a significant influence on careful financial and material resource management. Apparently the standards are clear, comprehensive and understandable to the employees. It also seems that the Dutch Defence organization provides sufficient time, budgets, equipment, information, and authority to their employees to fulfil their responsibilities. Or they are so committed to their task to accomplish it even if not all conditions are met. This relates to the previous mentioned 'can-do mentality'. Regarding *transparency*, it may be the case that respondents do not understand that careless management of resources may occur. This is in line with a lack of cost insight and as a result, lack of cost awareness at the level of the respondents. We did not find evidence to support the expected positive impact of *supportability* and the expected curvilinear effect of *sanctionability* on financial management. Regarding material resources management we did find a curvilinear relationship, but in the opposite direction of what we expected. Apparently in the Dutch Defence organization, if *sanctionability* is either low or high, the perceived quality of material resources is higher than if *sanctionability* is moderately developed.

Regarding the impact of the specific hard controls on financial and material resources management, we could not find evidence to support the expected curvilinear impact of *internal auditing*, *recording*, *procedures and rules* and the positive impact of *risk analysis*. We found a positive linear impact of *rules and procedures* on both financial and material resources management instead. We also found a curvilinear impact of *segregation of duties* on material resources management. However, the shape of the curvilinear relation we found was –like the soft control *sanctionability*– the opposite from what we expected.

The U-shaped relations we found, give us reason to believe that the hard control *segregation of duties* and the soft control *sanctionability* should be used with care. This means that the Dutch Defence organization should strive for the right level of intensity and realize that this might be different for the various categories of materiel.

Can the views of the respondents in the Dutch Defence organization be validated with information from 'external' (archival) sources?

This issue concerns the so-called ‘common method variance’. For reasons we deem appropriate, the validation has been limited to sensitive material resources management only.

The results of the comparison between the employee opinion and the auditors’ opinion suggest that the idea of careful management of sensitive materiel of the respondents is overall similar to the assessment of the auditors. However, there are differences between the two sources that give reason to compare the regression analyses based on the employee opinion and the regression analyses based on the auditors’ opinion of careful sensitive materiel management.

Regarding the presumed positive impact of hard controls on sensitive material management, both analyses show that hard controls do not have a significant impact on any kind of sensitive material resources management. Both analyses also demonstrate the strengthening effect of soft controls in the relationship between hard controls and the management of ammunition.

Regarding the influence of military culture there is a partial difference between the opinion of the respondents and the auditors’ opinion. Military culture only is of significant influence when the auditors assess the management of weapons and cryptographic equipment. When the respondents give their opinion this influence cannot be found.

Furthermore we see that soft controls impact significantly and positively on all kinds of materiel in the employee opinion, but only on overall sensitive material management in the auditors’ opinion. So it seems that the positive effect of soft controls is somewhat weaker when the management of sensitive materiel is assessed by the auditors.

Third, the diminishing effect of soft controls on the negative relation between military culture and sensitive material management is only shown in the management of ammunition and overall sensitive material management when assessed by the respondents. When assessed by the auditors this effect cannot be found.

Thus, these analyses lead us to conclude that soft controls -and particularly soft controls in the military context- play an almost exclusive role in establishing careful sensitive material resources management, irrespective of the way this has been measured. This underlines the importance of soft controls in the management control system of the Dutch Defence organization.

Taking everything together, this study leads to, first, avenues for further research and, second, to recommendations that controllers, auditors, commanders and managers within the Dutch Defence organization would need to apply to improve the quality of financial and material resources management.

Samenvatting

(summary in Dutch)

Samenvatting (summary in Dutch)

Deze studie onderzoekt het management control system van de Nederlandse Defensie organisatie door te focussen op de invloed die de verschillende soorten formele, hard controls en informele, soft controls hebben op het financieel en materieel beheer. Gegeven de specifieke context van deze studie, dragen de elementen van professionele cultuur en kostenbewustzijn bij aan het algemene begrip van management control, haar antecedenten en haar impact. Deze studie wil vooral de verschillen in gepercipieerde kwaliteit (= zorgvuldigheid) van het financieel en materieel beheer onderzoeken en verklaren.

Het onderzoeksontwerp van deze studie is gebaseerd op gemengde methoden: survey onderzoek met een steekproef van 220 respondenten op het gebied van financieel beheer en een steekproef van 170 respondenten uit het domein van materieel beheer, naast 23 semigestructureerde interviews en 114 gearchiveerde auditrapporten. Door toepassing van deze gemengde methoden, is deze studie van wetenschappelijke waarde omdat voorgaande studies meestal óf kwalitatieve óf kwantitatieve data gebruiken. Daarnaast dient deze studie een praktisch doel door inzicht te verschaffen in de onderliggende managementproblemen waardoor het financieel en materieel beheer in de Nederlandse Defensie organisatie tot dusver niet volledig op orde is (Algemene Rekenkamer, 2006 tot 2016).

De centrale onderzoeksvraag van deze studie luidt:

Op welke manier beïnvloeden hard en soft controls het financieel en materieel beheer van de Nederlandse Defensie organisatie?

Met het beantwoorden van de eerste deelvraag hebben we een theoretische achtergrond gegeven over de relaties tussen militaire professionele cultuur, kostenbewustzijn, hard en/of soft controls en financieel en materieel beheer. De empirische resultaten zijn samengevat aan de hand van de volgende vier deelvragen.

Welke interne belanghebbenden zijn er en verschillen deze van mening over het financieel en materieel beheer in de Nederlandse Defensie organisatie?

Uit zowel de analyse van de interviews met de commandanten en de financieel specialisten, als de antwoorden op de open vragen, ontstaat de indruk dat management control een zaak is van zowel hard als soft controls. De bevindingen tonen aan dat een verbetering van de hard controls, met name *regels en procedures*, *interne audits* en *registratie*, vooral kan worden gevonden in het moderniseren van deze controls op een manier die in lijn ligt met de zogenaamde 'enabling bureaucracy' (Adler en Borys, 1996). Tegelijkertijd is verbetering van de soft controls gerelateerd aan de noodzaak om mensen in de organisatie bewust te maken van het feit dat overal voor moet worden betaald, dat materieel altijd verantwoord moet kunnen worden en dat tijd kostbaar is. Zowel in de interviews als bij de antwoorden op de open vragen werden de

soft controls *voorbeeldgedrag* en *bespreekbaarheid* vaak genoemd. Een kenmerk van de militaire cultuur die vaak naar voren kwam in de interviews was de zogenaamde ‘can-do’ mentaliteit. Volgens de geïnterviewden kan in situaties waarin onmiddellijke dreiging of crisis heerst, de waarde van deze houding niet worden overschat.

Gebaseerd op een aantal statistische analyses van de gegevens uit het survey onderzoek, blijkt dat de commandanten het financieel beheer significant zorgvuldiger beoordelen dan de andere belanghebbenden. Wat betreft het materieel beheer wijkt de beoordeling van de verschillende belanghebbenden niet significant van elkaar af. Zowel de commandanten als de financieel specialisten blijken een significant hogere mate van kostenbewustzijn te hebben dan de andere respondenten. De financieel en logistiek specialisten geven een hogere waardering van de opzet, het bestaan en de werking van de hard controls in vergelijking met de medewerkers in het financieel en materieel beheer. Wat betreft de waardering van de soft controls waren er geen afwijkende resultaten tussen de verschillende belanghebbenden.

Welke soort controls, hard en/of soft, zijn meer effectief in het financieel en materieel beheer van de Nederlandse Defensie organisatie?

De meervoudige regressie analyses, uitgevoerd op de gegevens van het grootschalig survey onderzoek, leverden geen bewijs voor het verwachte mediatie effect van kostenbewustzijn in de relatie tussen militaire professionele cultuur en financieel en materieel beheer. Kostenbewustzijn bleek helemaal geen effect op financieel of materieel beheer te hebben. Dit kan mogelijk worden verklaard uit het feit dat kostenbewustzijn niet zo relevant is voor de respondenten van deze studie. Zij opereren op een relatief laag niveau in de organisatie, terwijl de budgetten en de financiële consequenties hoger in de organisatie zijn belegd.

Militaire cultuur bleek geen significante invloed op financieel beheer te hebben. We hebben daarentegen wel gevonden dat wanneer er sprake is van een hoge mate van militaire professionele cultuur, de kwaliteit van het materieel beheer significant beter wordt gewaardeerd. Deze directe invloed van militaire cultuur komt niet overeen met wat we in eerste instantie verwachtten, maar kan eenvoudig worden verklaard. Militairen -vooral onder operationele omstandigheden- zijn afhankelijk van hun materieel als helmen, kogelwerende vesten of voertuigen.

Hard controls hadden ook een positieve invloed op financieel en materieel beheer volgens de regressie analyses. Deze impact verdween echter als de soft controls aan de analyses werden toegevoegd. Dit resultaat kan worden verklaard door een mediërende invloed van soft controls in de relatie tussen hard controls en financieel en materieel beheer. We hebben bewijs gevonden om dit mediatie effect te ondersteunen. Alleen door soft controls komen hard controls tot leven. Daarnaast hebben we bewijs gevonden voor de directe positieve invloed van soft controls op zowel financieel als materieel beheer.

Welke specifieke hard en soft controls, in welke mate van intensiteit, zijn effectief in het financieel en materieel beheer van de Nederlandse Defensie organisatie?

Wat betreft de impact van de specifieke soft controls, laten de resultaten van de meervoudige regressie analyses zien dat *voorbeeldgedrag* positieve invloed heeft op zowel financieel als materieel beheer. Zoals verwacht, als de respondenten leiderschap ervaren waarbij er consistentie is tussen de verwachtingen in de organisatie en het concrete management gedrag, dan beoordelen ze het financieel en materieel beheer ook zorgvuldiger. *Bespreekbaarheid* lijkt ook een positieve invloed te hebben op beide vormen van beheer. Blijkbaar beoordelen de respondenten het financieel en materieel zorgvuldiger als zij de communicatie in hun eenheid als een goede balans tussen 'didactische' en 'werkelijke' gesprekken ervaren, waardoor de mogelijkheid wordt gecreëerd om te leren van fouten. Eveneens zoals verwacht, konden we geen bewijs vinden voor een significante invloed van de soft controls *helderheid*, *uitvoerbaarheid* en *transparantie* op financieel en materieel beheer. De standaarden zijn blijkbaar helder, volledig en begrijpelijk voor de medewerkers. Het lijkt ook dat de Nederlandse Defensie organisatie voldoende tijd, middelen, informatie en bevoegdheden aan haar medewerkers geeft om de taken uit te voeren. Of men is zo geëngmenteerd dat men de taak ook voltooid ondanks dat niet alle randvoorwaarden zijn ingevuld. Dit is te relateren aan de eerdergenoemde 'can-do' mentaliteit. Wat betreft *transparantie*, kan het zo zijn dat de respondenten niet beseffen dat er sprake is van onzorgvuldig beheer. Dit ligt in lijn met het gebrek aan kosteninzicht en als een gevolg daarvan gebrek aan kostenbewustzijn op het organisatieniveau van de respondenten. We hebben geen bewijs kunnen vinden voor de verwachte positieve impact van *betrokkenheid* en het verwachte curvi lineaire effect van *handhaving* op financieel beheer. Aangaande materieel beheer vonden we wel een curvi lineaire relatie maar in de tegenoverstelde richting dan wat we verwachtten. De kwaliteit van het materieel beheer in de Nederlandse Defensie organisatie is blijkbaar hoger als *handhaving* nauwelijks of juist intensief wordt ingezet.

Wat betreft de impact van de specifieke hard controls op financieel en materieel beheer, hebben we geen bewijs kunnen vinden om het verwachte curvi lineaire effect van *interne audits*, *registratie*, *regels en procedures* en het positieve effect van *risicoanalyse* te ondersteunen. Daarentegen vonden we wel een positief lineair verband tussen *regels en procedures* en beide vormen van beheer. We hebben ook ondersteuning gevonden voor de curvi lineaire impact van *functiescheiding* op materieel beheer. De vorm van deze curvi lineaire relatie was echter – net als bij de soft control *handhaving* - het tegenovergestelde van hetgeen we hadden verwacht.

De U-vorm relaties die we hebben gevonden geven ons reden om aan te nemen dat de hard control *functiescheiding* en de soft control *handhaving* met zorg moeten worden ingezet. Dit betekent dat de Nederlandse Defensie organisatie moet streven naar de juiste mate van intensiteit en zich moet realiseren dat dit wel eens anders zou kunnen zijn voor de verschillende categorieën materieel.

Kunnen de meningen van de respondenten van de Nederlandse Defensie organisatie worden gevalideerd met informatie van 'externe' (gearchiveerde) bronnen?

Deze kwestie betreft de zogenaamde 'common method variance'. De validatie is om moverende redenen beperkt tot het gevoelig materieel beheer. Het resultaat van de vergelijking tussen

de meningen van de respondenten en de meningen van de auditors suggereert dat het idee van zorgvuldig gevoelig materieel beheer over het geheel genomen overeenkomt. Er zijn echter verschillen tussen de twee bronnen die aanleiding geven voor een vergelijking van de uitkomsten van de regressie analyse gebaseerd op de meningen van de respondenten en de regressie analyse gebaseerd op de meningen van de auditors aangaande zorgvuldig gevoelig materieel beheer.

Wat betreft de veronderstelde positieve impact van hard controls op gevoelig materieel beheer, laten beide analyses zien dat deze positieve invloed er niet is. Beide analyses laten ook zien dat soft controls een versterkend effect hebben in de relatie tussen hard controls en beheer van munitie.

Wat betreft de invloed van militaire cultuur, is er een gedeeltelijk verschil tussen de mening van de respondenten en die van de auditors. Militaire cultuur heeft namelijk alleen een significante invloed als de auditors het beheer van wapens en munitie beoordelen. Als de respondenten hun mening geven kan deze invloed niet worden aangetoond.

Verder zien we dat soft controls een significante en positieve invloed hebben op alle soorten gevoelig materieel volgens de mening van de respondenten, maar dit is alleen het geval bij gevoelig materieel beheer in zijn totaliteit volgens de auditors. Het lijkt er dus op dat het positieve effect van soft controls iets zwakker is als het gevoelig materieel beheer wordt beoordeeld door de auditors.

Ten derde toont alleen de beoordeling van de respondenten een matigend effect van soft controls in de negatieve relatie tussen militaire cultuur en munitiebeheer en gevoelig materieel beheer in zijn totaliteit. Dit effect kan niet worden aangetoond als dit materieel beheer door de auditors wordt beoordeeld.

Deze analyses leiden dus tot de conclusie dat soft controls -en vooral soft controls in de militaire context- haast een exclusieve rol spelen in het zorgvuldig beheren van gevoelig materieel, ongeacht de manier waarop dit wordt gemeten. Dit onderstreept het belang van soft controls in het management control systeem van de Nederlandse Defensie organisatie.

Alles bij elkaar leidt deze studie, ten eerste, tot richtingen voor verder onderzoek en ten tweede, tot aanbevelingen die controllers, auditors, managers en commandanten van de Nederlandse Defensie organisatie zullen moeten naleven om de kwaliteit van het financieel en materieel beheer te verbeteren.

Appendices

APPENDIX I Reports Court of Audit

- = inaccuracies
- = severe inaccuracies
- + = solved

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Financial management											
Royal Netherlands Navy	-	-	-	+	-	-	-	+	-		
Royal Netherlands Army	-	-	-	+				+			
Royal Netherlands Airforce	-	-	-	-	-	-	-	+	-		
Royal Netherlands Marechaussee	-	-	-	+	-	-	-	+			
Joint Support Command	-	-	-	-	-	-	-	-	-	-	+
Central Staff	-	-	-	-	-	-	-	-	-	-	+
Defence Materiel Organisation	n.a.	-	-	-	-	-	-	-	-		
Crisis Response Operations	-	-	-	-	-	-	-	+			
Financial recording system (ERP)		n.a.		-	-	+					
Administration of liabilities		-	-	-	-	-	+				

	2005*	2006*	2007*	2008	2009	2010	2011	2012	2013	2014	2015
Material resources management											
Royal Netherlands Navy				-	-	-	-	+			
Royal Netherlands Army				-	-	-	+				
Royal Netherlands Airforce				-	-	-	-	+			
Royal Netherlands Marechaussee	-/-	-/-	--/-	-	-	-	-	+		Monitoring Quality system Materiel ***	
Joint Support Command				-	-	-	-	+			
Central Staff**				-	-	-	+	-			
Defence Materiel Organisation				-	-	-	-	+			
Crisis Response Operations	-	-	-	-	-	+	-	-			
Materiel recording system (ERP)		n.a.		-	-	-	+				
Logistic chain of spare parts					n.a.						

* Until 2008 the inaccuracies in materiel resources management (weapons / ammunition / other materiel) were recorded for the defence organization as a whole.

** Only Military Intelligence Unit

*** Implementation Monitoring Quality system Materiel (MKM in Dutch) is fully complete. This is a monitoring system based on self-control of the units.

APPENDIX II Topic list semi-structured interviews

Date:

Name:

Function civilian/military:

Introduction

1. What service are you in?
2. If ever, how often have you been deployed?
3. What previous positions did you hold?
4. What is your current role in financial and/or material resources management?

Organisation culture

5. How would you describe the organisation culture of the Dutch defence organisation?
 - open/closed
 - results-oriented
 - professional

Financial and/or material resources management

6. What is your opinion about the current condition of financial (both financial specialists and (deputy) commanders) and/or material resources management (only (deputy) commanders) in your organization?

Financial management:

- Expenditures
- Liabilities
- Receivables and receipts
- Advances
- Accounts outside of the budget
- Liquid assets

Material resources management:

- Weapons
- Ammunition
- Crypto-equipment
- Other material resources

7. What are possible causes of careless financial and/or material resources management?
 - Lack of administrative discipline
 - Implementation ERP (FINAD)
 - Missing or failing hard controls:
 - Segregation of duties
 - Internal auditing
 - Procedures and rules
 - Recording
 - Risk analysis
 - Missing or failing soft controls
 - Clarity
 - Congruency
 - Feasibility

- Supportability
 - Transparency
 - Discussability
 - Sanctionability
 - Links between hard and/or soft controls
8. What kind of financial and/or material resources management policy is adopted within you organization?
 - Priorities?
 9. To what extent can more or better working control mechanisms help improving financial and/or material resources management?

Cost awareness

10. To what extent will cost awareness of employees be beneficial to the improvement of financial and/or material resources management of the Dutch defence organization?
11. To what degree is cost control a responsibility of every employee of the Dutch defence organization?
12. To what extent fits cost awareness in the policies of the Dutch defence organization?

APPENDIX III Measurement, scales, factor and reliability analysis

Dependent variable Financial management (Eigen value = 4.46; α = .93)	Loadings
<i>Perceived quality of financial management (from 1 = very careless till 6 = very careful)</i>	
1. In my view the management of expenditures in my unit is	.80
2. In my view the management of liabilities in my unit is	.86
3. In my view the management of receivables and receipts in my unit is	.85
4. In my view the management of advances in my unit is	.92
5. In my view the management of accounts outside of the budget in my unit is	.87
6. In my view the management of liquid assets in my unit is	.86
Dependent variable Material resources management (Eigen value = 2.33; α = .73)	
<i>Perceived quality of material resources management (from 1 = very careless till 6 = very careful)</i>	
1. In my view the management of ammunition in my unit is	.77
2. In my view the management of weapons in my unit is	.83
3. In my view the management of crypto equipment in my unit is	.78
4. In my view the management of other material resources than ammunition, weapons and crypto equipment, in my unit is.	.66
Independent variable Cost awareness (Eigen value = 2.21; α = .69)	
<i>Cost awareness (from 1 = strongly disagree till 6 = strongly agree)</i>	
1. There is currently too much emphasis on costs in my unit.	.88
2. Within my unit people worry too much about the costs.	.87
3. The managers of my unit worry too much about the costs.	.72
4. It is unfair to ask employees of the defence organization to be cost aware and at the same time putting the protection of human lives at the first place.	.42
Independent variable Hard controls	
<i>(from 0 = I don't know, 1 = strongly disagree till 6 = strongly agree)</i>	
Segregation of duties (Eigen value = 2.42; α = .88)	
<i>In my unit:</i>	
1. We apply segregation of duties in financial/material resources management.	.93
2. Segregation of duties contributes to the accuracy of financial/material resources management.	.92
3. The segregation of duties in financial/material resources management is captured in a responsibilities matrix.	.85
Internal auditing (Eigen value = 1.95; α = .73)	
<i>In my unit:</i>	
1. Internal auditing contributes to the accuracy of financial/material resources management.	.83
2. Financial/material resources management are being audited by the internal audit services of the defense organization (OIB and ADD).	.82

3. The activities of the internal auditing services are written down in a plan.	.77
Procedures and rules (Eigen value = 2.20; α = .81)	
<i>In my unit:</i>	
1. We apply the procedures and rules for financial/material resources management.	.91
2. The procedures and rules for financial/material resources management contributes to the accuracy of financial/material resources management.	.88
3. There are several procedures and rules for financial/material resources management.	.78
Recording (Eigen value = 2.49; α = .90)	
<i>In my unit:</i>	
1. Recording concerning financial/material resources management takes place in a computerized system.	.94
2. A computerized system for recording concerning financial/material resources management is available.	.91
3. Recording in a computerized system contributes to accurate financial/material resources management.	.88
Risk analysis (Eigen value = 2.46; α = .89)	
<i>In my unit:</i>	
1. Through performing risk analysis difficulties in financial/material resources management receive special attention.	.93
2. Identifying difficulties in financial/material resources management through performing risk analysis contributes to the accuracy of financial/material resources management.	.90
3. Every year a risk analysis is performed to identify difficulties in financial/material resources management.	.88
Independent variable Soft controls	
<i>(from 1 = strongly disagree till 6 = strongly agree)</i>	
Loadings	
Clarity financial management (Eigen value = 4.53; α = .93)	
1. It is sufficiently clear to me what is meant by accurate management of expenditures.	.80
2. It is sufficiently clear to me what is meant by accurate management of liabilities.	.87
3. It is sufficiently clear to me what is meant by accurate the management of receivables and receipts.	.90
4. It is sufficiently clear to me what is meant by accurate management of advances.	.92
5. It is sufficiently clear to me what is meant by accurate management of off- budget accounts.	.83
6. It is sufficiently clear to me what is meant by accurate the management of liquid assets.	.90
Clarity material resources management (Eigen value = 3.28; α = .92)	
1. It is sufficiently clear to me what is meant by accurate management of ammunition.	.90
2. It is sufficiently clear to me what is meant by accurate management of weapons.	.94
3. It is sufficiently clear to me what is meant by accurate management of crypto equipment.	.90
4. It is sufficiently clear to me what is meant by accurate management of other material resources than ammunition, weapons and crypto equipment.	.89
Congruency (Eigen value = 3.85; α = .89)	
1. My supervisor sets a good example in terms of financial/material resources management.	.83
2. My supervisor communicates the importance of financial/material resources management clearly and convincingly.	.86
3. My supervisor would never accept inaccurate financial/material resources management to meet business goals.	.78

4. My supervisor fulfils his responsibilities in financial/material resources management.	.81
5. The management team of my unit sets a good example in terms of financial/material resources management.	.75
6. The management team of my unit communicates the importance of financial/material resources management clearly and convincingly.	.77
Feasibility (Eigen value = 2.64; α = .82)	
1. I am adequately trained (and or educated) to perform my task in the financial/material resources management properly.	.86
2. I have sufficient work experience to perform my task in the financial/material resources management properly.	.86
3. I have sufficient time at my disposal to perform my task in the financial/material resources management properly.	.81
4. I have adequate information and communication technology at my disposal to perform my task in the financial/material resources management properly.	.71
Supportability (Eigen value = 2.14; α = .70)	
1. In my unit everyone is totally committed to the existing rules and regulations of financial/material resources management.	.76
2. In my opinion accurate financial/material resources management is important	.52
3. In my unit a mutual relationship of trust prevails between employees and management.	.73
4. In my unit everyone takes the existing rules and regulations of financial/material resources management seriously.	.87
Transparancy (Eigen value = 2.62; α = .77)	
1. If someone in my unit is engaged in inaccurate financial/material resources management, my supervisor will find out.	.73
2. If someone in my unit is engaged in inaccurate financial/material resources management, I or one of my colleagues will find out.	.73
3. If my supervisor is engaged in inaccurate financial/material resources management, someone in my unit will find out.	.74
4. There is sufficient awareness in my unit of the risk areas in financial/material resources management.	.68
5. In my unit there are adequate controls to detect inaccurate financial/material resources management.	.74
Discussability (Eigen value = 3.24; α = .86)	
1. I have the opportunity to express my opinion on proper financial/material resources management in my unit.	.81
2. Within my unit people are open to discuss dilemmas of financial/material resources management.	.90
3. Within my unit there is ample opportunity to discuss dilemmas of financial/material resources management.	.89
4. If inaccuracies of financial/material resources management occur. that someone is being called to account.	.74
5. If reported inaccurate financial/material resources management does not receive adequate attention, there is sufficient opportunity to raise the matter elsewhere in the organization.	.67

Sanctionability (Eigen value = 2.90; α = .82)	
1. In my unit people are accountable for their actions.	.65
2. My supervisor will be disciplined if s/he displays inaccurate financial/material resources management.	.80
3. In my unit successful people comply with the rules of accurate financial/material resources management.	.71
4. Within my unit accurate financial/material resources management is rewarded.	.76
5. Within my unit employees will be disciplined if s/he displays inaccurate financial/material resources management.	.87

APPENDIX IV Specimen archival audit report

Vaktechnische aanwijzing IC-CLAS	Feitelijke bevindingen controle crypto-apparatuur	Stuknr. B.02
Controleprogramma crypto- apparatuur		
Dossiernummer: CA01311m		Blad 1 van 3 bladen
Controleobject: Ccie 11 Infbat		Datum:16-06-2011

Overzicht van feitelijke bevindingen controle cryptoapparatuur				Stuknr B.1.1		
Nr.	Norm	Deelproces	AKK	NA	NVT	
2		VOORONDERZOEK				
2.1	2	Is voldoende gevolg gegeven aan bevindingen uit voorgaande controles, waarbij een verhoogd risico op vermissing is vastgesteld?				0
3		INRICHTING VAN DE CRYPTOBEHEER ORGANISATIE	AKK	NA	NVT	
3.1.1	DBB D/503 H2	Is er een aanwijzing aanwezig, waarmee de commandant/hoofd van de eenheid de huidige cryptofunctionarissen heeft aangewezen?	V			
3.1.2	VMD 15.5.3	Is de aanwijzing door de commandant/hoofd van de eenheid actueel?	V			
3.2	VMD 15.5.3	Beschikken functionarissen die belast zijn met cryptotaken (o.a. cryptobeheerders, onderhoudspersoneel, INFOSEC officieren) over het juiste vertrouwensniveau met geldige Verklaring Geen Bezwaar (VGB) en cryptomachtiging?	V			
3.3	VMD 15.5.3	Heeft de materieelbeheerder (en/of -behandelaar) een instructie gevolgd/gehad over het beheer van CCI-apparatuur?	V			
3.4	VMD 15.5.3	Hebben de cryptobeheerders de voorgeschreven opleidingen gevolgd?	V			
3.5	DBB D/503 H4.3	Voldoet het crypto archief van de cryptobeheerder voor wat betreft de aspecten die relevant zijn voor apparatuur aan de te stellen eisen?	V			
4		AUTORISATIE VAN APPARATUUR	AKK	NA	NVT	
4.1	VMD 15.6.6/7	Wijken de aanwezige aantallen af van de geautoriseerde aantallen en zijn die afwijkingen door de eenheid te onderbouwen/verklaren (vastlegging voornamelijk in (MATLOG) autorisatiesystemen)?	V			
5		VERANTWOORDING VAN APPARATUUR	AKK	NA	NVT	
5.1	VMD 15.7.6	Is cryptoapparatuur op (tijdelijk) bruikleen doorverstrekt; zijn daarvan bruikleenbewijzen aanwezig en voldoen de bruikleenbewijzen aan de belangrijkste (kenmerk, handtekening voor ontvangst) te stellen eisen?				0
5.2		Voldoen de aangetroffen bruikleenbewijzen (of ROC's) aan de overige te stellen eisen?				0
6		OVERIGE PROCEDURES VOOR APPARATUUR	AKK	NA	NVT	
6.1	DBB D/503 H11	Voldoet het noodvernietigingsplan van de cryptobeheerder aan de te stellen eisen (uitsluitend van toepassing voor uitzendgebieden)?				0
6.2	VMD 15.6.14 en 15	Indien CCI-apparatuur is afgestoten (uitsluitend DMO), is daarvoor dan goedkeuring door de BA (advies CVBD) verleend?				0

Vaktechnische aanwijzing IC-CLAS	Feitelijke bevindingen controle crypto-apparatuur	Stuknr. B.02
Controleprogramma crypto- apparatuur		
Dossiernummer: CA01311m		Blad 2 van 3 bladen
Controleobject: Ccie 11 Infbat		Datum: 16-06-2011

Overzicht van feitelijke bevindingen controle cryptoapparatuur				Stuknr B.1.1		
Nr.	Norm	Deelproces				
6.3	3	Indien CCI-apparatuur is afgestoten (uitsluitend DMO) heeft daarvan dan verwerking in CCIRS en de beheerssystemen plaatsgevonden?				O
7		TELLINGEN	AKK	NA		NVT
7.1.1 ¹	VMD 15.8 2	Heeft de cryptobeheerder gedurende de afgelopen periode de minimum voorgeschreven tellingen op de juiste wijze uitgevoerd?	V			
7.1.2	VMD 15.8 3	Heeft de cryptobeheerder de telling wel uitgevoerd maar niet in de juiste maand (maart) en is daar dan toestemming voor verleend?				O
7.2.	VMD 15.8 3	Is de telling door de commandant (of door hem gemandateerde) in het CCIRS vastgesteld	V			
8		AANWEZIGHEIDSCONTROLE EN FYSIEKE BEVEILIGING VAN CRYPTO-APPARATUUR	AKK	NA		NVT
8.1	VMD 15.8.1 1	Stemt de fysiek aanwezige CCI-apparatuur van de eenheid op kenmerk volledig overeen met hetgeen in CCIRS is geadmineistreerd? (controle vindt plaats o.b.v. een positieve en negatieve deelwaarneming. Zie bijlage hierover)	V			
8.2 ²	VMD 15.8.1 2	Stemmen de in CCIRS geadmineistreerde aantallen crypto-apparatuur volledig overeen met de in het beheerssysteem geadmineistreerde aantallen?	V			
8.3	VMD 15.8.1 2	Bestaat de specifieke "CCI-A" crypto-apparatuur van de eenheid (controle vindt plaats o.b.v. vergelijking kenmerk in CCIRS en IMDS)?				O
8.4		Zijn de alarmmeldingen in CCIRS op juiste wijze afgehandeld				O
8.5	VMD 3	Is alle cryptografische apparatuur en componenten voorzien van een CCI merking/aanduiding en een 2D barcode-label?	V			
8.6	VMD 15.7.4 2	Zijn voor crypto-apparatuur geladen met een gerubriceerde cryptosleutel de juiste fysieke beveiligingsmaatregelen getroffen (afhankelijk van de rubricering van de sleutel)?				O
8.7	VMD 15.7.4 2	Zijn voor (ongeladen) crypto-apparatuur voorzien van een rubricering de juiste fysieke beveiligingsmaatregelen getroffen (afhankelijk van de rubricering van het apparaat)?	V			
9		PROCEDURE BIJ VERMISSING	AKK	NA		NVT

¹ Door de CVBD is vanwege de omvangrijke activiteiten van het zgn "initieel 2D-barcode-label/scan-project" aan gedelegeerde CVBD voor de telling van maart 2011 de mogelijkheid geboden hiervan eenmalig af te wijken (Nota BS2011000061 d.d. 07 januari 2011)

² Verschillen die verklaard en onderbouwd kunnen worden met brondocumenten (b.v. faseverschillen) zijn niet van invloed op het oordeel.

Vaktechnische aanwijzing IC-CLAS	Feitelijke bevindingen controle crypto-apparatuur	Stuknr. B.02
Controleprogramma crypto- apparatuur		
Dossiernummer: CA01311m		Blad 3 van 3 bladen
Controleobject: Ccie 11 Infbat		Datum:16-06-2011

Overzicht van feitelijke bevindingen controle cryptoapparatuur				Stuknr B.1.1		
Nr.	DBB	Norm	Deelproces			
9.1.1	DBB D/503 12.2	1	Heeft de eenheid na het constateren van één of meerdere (vermoedens tot) vermissingen de juiste acties genomen volgens aanwijzing SG A/963 Melden van voorvallen (ernstcategorie bijzonder) en het gestelde in het VMD hoofdstuk 11.4 (procedure bij vermissing gevoelig materieel) en bij operationeel gebruik ook het gestelde in DBB hoofdstuk 12.2 uitgevoerd?			0
9.1.2	VMD 15.7.8	1	Heeft de eenheid bij een geconstateerde vermissing onverwijld aangifte gedaan bij de KMar?			0
10			TEKORTKOMINGEN TE WIJTEN AAN DERDEN (EIGEN OF ANDER DEFENSIEONDERDEEL)	AKK	NA	NVT
9.1		2	Zijn er tekortkomingen geconstateerd die niet aan de eenheid zijn te wijten, maar wel aan het eigen defensieonderdeel?			0
10.2		3	Zijn er tekortkomingen geconstateerd die niet aan de eenheid zijn te wijten, maar aan een ander defensieonderdeel?			0

APPENDIX V Overview of interviewees

Financial specialists

Respondent number	Position	Branch of service	Military / civilian
FS1	Director Financial Control	Head Directorate Finance & Control	Civilian
FS2	Head Cluster Financial management	Head Directorate Finance & Control	Civilian
FS3	Director Policy Control	Head Directorate Finance & Control	Civilian
FS4	President Taskforce “Beter Verbeteren”	Head Directorate Finance & Control	Civilian
FS5	Director Planning & Control	Royal Netherlands Army	Military
FS6	Head of Audit department POC improvement plans Army	Royal Netherlands Army	Military
FS7	Director Planning & Control	Royal Netherlands Airforce	Military
FS8	Head of Management Control department POC improvement plans Airforce	Royal Netherlands Airforce	Military
FS9	Director Planning & Control	Royal Netherlands Navy	Military
FS10	Head of Management Control department POC improvement plans Navy	Royal Netherlands Navy	Military
FS11	Director Planning & Control	Royal Netherlands Marechaussee	Civilian
FS12	Management control staff POC improvement plans Marechaussee	Royal Netherlands Marechaussee	Civilian
FS13	Director Planning & Control	Defence Materiel Organisation	Civilian
FS14	Head of Financial Control department POC improvement plans Materiel organisation	Defence Materiel Organisation	Civilian
FS15	Deputy Director Planning & Control POC improvement plans Joint Support Command	Joint Support Command	Military
FS16	Head of Management control department	Joint Support Command	Civilian
FS17	Director Planning & Control	Central Staff	Civilian

(Deputy) Commanders

Respondent number	Position	Military / civilian
C1	Deputy Commander of the Royal Netherlands Army	Military
C2	Deputy Commander of the Royal Netherlands Navy	Military
C3	Deputy Commander of the Royal Netherlands Airforce	Military
C4	Commander of the Royal Netherlands Marechaussee	Military
C5	Deputy Commander of the Joint Support Command	Military
C6	Deputy commander of the Defence Materiel Organisation	Military

APPENDIX VI Datamatrices financial specialists

Respon- dent	Branch of service	Organization culture	Problems financial management	Causes problems
FS1	HDFC	Can-do mentality Result-oriented	Complexity, time-consuming, bureaucracy ingrained routines, not based on risk management	Decisiveness Attitude: not following the rules/procedures of the authorized budget
FS2	HDFC	Not a blame culture Not a culture of addressing (low discussability) Risk aversion	No clear measurement system and system of standards Late expenditures Outdated registers of authorities Late and false recording of liabilities	Culture: not following the rules/procedures of the authorized budget Lack of knowledge Complex structure, too many links in the chain (poor communication)
FS3	HDFC	At managerial level lack of trust compensated by surplus of rules, informational services and monthly reports	About 80% of expenditures are carried out by DMO and SC. Late and false recording of liabilities Poor contract management Getting used to new ERP-system (FINAD)	Complex structure, too many links in the chain
FS4	HDFC	Focus on primary process Low level of discussability	Lack of a pro-active monitoring system (also MRM) Not meeting preconditions like enough administrative personnel	Lack of attention to careful management No involvement of commanders No pointing out of careless management (discussability) Rules were too strict (zero-tolerance) causing lack of motivation, so need for feasible standards
FS5	RVA	Can-do mentality Result-oriented	Not every problem is solved but we are in control because we know what the problems are (liabilities, contract management, expenditures due to late declarations of performance)	Increasing workload New ERP-system (FINAD)
FS6	RVA	Can-do mentality Result-oriented and therefore less focus on careful management of resources	Financial management is on an acceptable level: Liabilities are within the margins of error Late expenditures	Size of the organization Rules were too strict (zero-tolerance) causing lack of motivation, so need for feasible standards
FS7	RNAF	Can-do mentality "If it cannot go the way it should then it should be done the way it can"	Still room for improvement: Poor quality of email reply (verification of invoices) Poor management of outstanding liabilities Administrative sloppiness	Rules were too strict (zero-tolerance) causing lack of motivation, so need for feasible standards New ERP-system (FINAD) Lack of sufficient supervisory staff due to reductions and restructuring Poor management of compliance with rules No pointing out of careless management (discussability)
FS8	RNAF	Within RNAF: open culture Can-do mentality Not a culture of addressing (low discussability)	Only administration of expenditures (no administration of costs) Complex regulation Poor monitoring of outstanding liabilities	New ERP system (FINAD) lacks an effective monitoring tool, involvement of people does not compensate for this

Respondent	Branch of service	Organization culture	Problems financial management	Causes problems
FS9	RNN	Lack of trust between top management and operations	Positive, financial management is within the tolerance limits Sufficient human resources (quality and quantity) is a risk	New ERP system (FINAD) Complex structure, too many links in the chain
FS10	RNN	Result-oriented, money is just one of the means to reach the goals Within RNN: decentralization	Financial management is sufficient but not good: Too much attention to recording and not enough attention to budget execution Procurement at RNN Caribbean Financials at the 3rd level are too easily satisfied.	People should be more self-critical regarding their work
FS11	RNM	Result-oriented based on incidents especially in the operational context Focus on plans, not on acting according to those plans Not a culture of addressing (low discussability)	We have set up a number of projects, but financial management is not yet in proper order: Complexity Lack of quality of administrative personnel Incident-driven budget management	Quality of financials at the 3rd level
FS12	RNM	Bureaucratic Reigned by the issues of the day	Too much focus on solutions instead of getting to the root of the problem first	People might be unaware caused by lack of knowledge
FS13	DMO	Not efficiency based, but result-oriented	Room for improvement: It takes time to adjust procedures and organize the IT-support Hindering effect of restrictive credit monitoring Unrealistic budgets	Time-consuming incident management Financials do not always understand the impact of the failures Not enough risk management
FS14	DMO	Focus in the operations Can-do mentality Hierarchy	We have set up a number of projects, but financial management is not yet in proper order: Poor management of outstanding liabilities Late expenditures	Lack of sufficient supervisory staff due to reductions and restructuring Complex structure, too many links in the chain (centralisation of payment operations) Lack of attention to careful management Lack of knowledge and capacity Lack of trust New ERP (FINAD)
FS15	JSC	Two worlds: Result-oriented within the framework provided during operations Bending the rules under peacetime conditions	We have set up a number of projects (e.g. prior surveillance), but financial management is not yet in proper order: Complexity Interaction between controllers and acquirer Poor management of outstanding liabilities Late expenditures	Lack of attention to careful management Complex structure, too many links in the chain (centralisation of payment operations and procurement)

Respondent	Branch of service	Organization culture	Problems financial management	Causes problems
F516	JSC	Task and result-oriented	Important steps forward, but financial management is not yet in proper order: Outstanding liabilities (registers of authorities) Procurement (register of contracts, reactive attitude of acquirers)	Poor management of compliance with rules No pointing out of careless management (discussability) New ERP system (FINAD)
F517	CS	Within CS: political pressure and hierarchy sometimes undermines efficiency and legitimacy	Positive, financial management is within the tolerance limits Legitimacy has been proved, deficiencies are due to late recording of liabilities	Attitude: not following the rules/procedures of the authorized budget Rules were too strict (zero-tolerance) causing lack of motivation. Need for feasible standards
<p>Legend:</p> <p>RNA Royal Netherlands Army RNAF Royal Netherlands Air Force RNN Royal Netherlands Navy RNM Royal Netherlands Marechaussee DMO Defence Materiel Organization JSC Joint Support Command CS Central Staff</p>				

Respon- dent	Branch of service	Avenues for improvement		Cost awareness	
		Hard controls	Soft controls	Current situation	Relation to FM
FS1	HDFC	Restrictive credit monitoring	Changes in behaviour	Low cost awareness	Positive relation
FS2	HDFC	Procedures/rules	Clarity (rules/procedures) Congruency (attention for careful management)	Low: no insight into costs let alone cost awareness	No relation
FS3	HDFC	Pro-active control, less internal auditing	Administrative discipline	Improving: cutbacks have an indirect effect on cost awareness	Positive relation
FS4	HDFC	Procedures/rules	Congruency (attention for careful management)	Low: focus on effectiveness, not on efficiency	No relation
FS5	RNA	Segregation of authorities Procedures/rules Centralisation of budgets	Congruency (attention for careful management)	Low: no insight into costs let alone cost awareness Focus on expenditures.	Not necessarily
FS6	RNA	Pro-active control Updating registers of authorities	Transparency	Improving: cutbacks have an indirect effect on cost awareness	Positive relation
FS7	RNAF	Risk analysis	Congruency (attention for careful management) Discussability	Low: focus on expenditures	Negative because of regulation
FS8	RNAF	Less restrictive procedures/rules Risk analysis	Trust and empowerment	High cost awareness but not enough information	Relation unknown
FS9	RNN	Prior surveillance Monitoring Internal auditing	Feasibility Discussability	Tight controls do not lead to cost awareness	Relation unknown
FS10	RNN	Monitoring	Supportability	Tight controls do not lead to cost awareness	Relation unknown
FS11	RNM	Updating registers of authorities Register for contracts Less restrictive rules and procedures Focus on getting to the root of the problem	Congruency (attention for careful management) Discussability Sanctionability (symbolic green, yellow and red cards)	Low cost awareness due to sub-optimization Improving: cutbacks have an indirect effect on cost awareness	No relation

Respon- dent	Branch of service	Avenues for improvement		Cost awareness	
		Hard controls	Soft controls	Current situation	Relation to FM
F512	RNM	Focus on getting to the root of the problem Digital system of recording invoices Register for contracts Updating registers of authorities	Discussability Sanctionability (symbolic green, yellow and red cards)	Low: focus on expenditures Improving: cutbacks have an indirect effect on cost awareness	No relation
F513	DMO	Monitoring Register for contracts Management of liabilities and expenditures	Discussability (learning from mistakes)	Improving: cutbacks have an indirect effect on cost awareness	Positive relation
F514	DMO	Management of liabilities and expenditures Monitoring through monthly reports	Clarity (explain why things need to be done in a certain way) Congruency (attention for careful management) Discussability	Improving: cutbacks have an indirect effect on cost awareness Problem: not enough insight into costs	Positive relation
F515	JSC	Monitoring Recording Restrictive credit monitoring Management of liabilities and expenditures Register for contracts Updating registers of authorities	Clarity of hard controls Congruency (attention for careful management) Discipline: do what we have already committed ourselves to	Low: focus on expenditures	Negative relation
F516	JSC	Register for contracts Updating registers of authorities Less restrictive rules and procedures Less recording Risk analysis	Clarity	Low: no insight into costs let alone cost awareness Focus on expenditures	No relation
Legend:					
RNA		Royal Netherlands Army			
RNAF		Royal Netherlands Air Force			
RNN		Royal Netherlands Navy			
RNM		Royal Netherlands Marechaussee			
DMO		Defence Materiel Organization			
JSC		Joint Support Command			
CS		Central Staff			

APPENDIX VII Datamatrix (deputy)commanders

Respon- dent	Branch of service	Organization culture	Problems		Causes problems		Avenues for improvement		Cost awareness
			FM	MRM	FM	MRM	Hard controls	Soft controls	
C1	RNA	Professional organization Closed personnel system RNA: Mission-oriented command ¹	Improving but still on the rebound of a series of reorganisations Insufficient insight into the expenditures	Insufficient insight into the location of materiel	Implementation ERP systems (FINAD) Supporting units make interim adjustments of agreements	Centralisation of management of materiel Deployment of non-organic units	A realistic view of being "in control"	Congruency	Not enough insight into costs Authorization and responsibility differ so widely
C2	RNN	Result-oriented (efficiency is of secondary importance) Can-do mentality Professional	"We are holding to account for our own rules, but there are too many rules" Late payment	Management of ammunition (administrative differences)	Implementation ERP systems (FINAD) Poor contract management	Implementation ERP system (WMS Class 5 Ammunition) Lack of sufficient staff in materiel management	Control based on risk analysis Simplification of rules and procedures	Congruency (work visits) Discussability Sanctionability	Not enough insight into costs Create a win-win situation: when a unit is cost aware and saves costs they should be allowed to keep the money (positive incentive)
C3	RNAF	Result-oriented (efficiency is of secondary importance) Can-do mentality Professional RNAF: low hierarchy due to mutual dependence	Improving	Not so optimistic	Too many and too complex procedures Lack of focus Lack of administrative discipline	Rules were too strict (zero-tolerance) causing lack of motivation, so need for feasible standards Implementation ERP system	Feasible standards Simplification of rules and procedures	-	Not enough insight into costs Authorization and responsibility differ so widely

Respondent	Branch of service	Organization culture	Problems		Causes problems		Avenues for improvement		Cost awareness
			FM	MRM	FM	MRM	Hard controls	Soft controls	
C4	RNM	Result-oriented (focus on operations, no attention for careful management) RNM should be leading by example	<p>“Feeling the breath of the Court of Audit is not nice, but necessary to be honest”</p> <p>Late payments</p> <p>Management of weapons</p> <p>Management of ammunition.</p> <p>Seized goods</p>	<p>Focus on expenditures instead of costs</p> <p>Absence of a positive sanctioning system</p> <p>Partition of the budget</p>	Deliberately using internal auditing	Discussability	Santionability	People with decision authority should be cost aware	
C5	JSC	Professionals No financial mind-set because we are a governmental organization	<p>FM and MRM are both improved and in order</p> <p>There might be risks we are not aware of</p> <p>Attention of management is gradually disappearing</p> <p>Not always prior surveillance</p> <p>Contracts are not always concluded via a competitive arrangement</p> <p>Lack of administrative discipline</p>	<p>Lack of sufficient (quantitative as well as qualitative) staff due to reductions and restructuring</p> <p>Rules were too strict (zero-tolerance) causing lack of motivation, so need for feasible standards</p>	Simplification of rules and procedures	Congruency	Transparency (by disclosure of audit reports)	Discussability	Not enough insight into costs
C6	DMO	Result-oriented (focus on operations, no attention for careful management)	<p>Expenditures</p> <p>Management of weapons</p> <p>Management of ammunition</p> <p>Management of crypto-equipment</p>	<p>Most important: not enough attention for careful management. Other factors:</p> <p>Set of instruments</p> <p>Implementing ERP system</p> <p>Knowledge</p> <p>Culture</p>	Simplification of rules and procedures	Congruency	More use of framework contracts	Not yet enough insight into costs	

Legend:
 RMA
 RMAF
 RNN
 RNM
 DMO
 JSC
 CS
 Royal Netherlands Army
 Royal Netherlands Air Force
 Royal Netherlands Navy
 Royal Netherlands Marechaussee
 Defence Materiel Organization
 Joint Support Command
 Central Staff

APPENDIX VIII Results preliminary tests multilevel analysis

For the purpose of multilevel analysis this study distinguishes between four levels¹: Level 1 is the lowest level consisting of the individual respondents, level 2 consists of an organizational unit at the level of a battalion (or similar), level 3 consists of an organizational unit at the level of a brigade (or similar) and finally, level 4 is the highest level and embodies the branch of service. Table VII-1 shows which units per branch of service have been used in the multilevel analysis of this study.

LEVEL 4 Branch of service	LEVEL 3 Units at the level of brigades (or similar)	LEVEL 2 Units at the level of battalions (or similar)	LEVEL 1 Number of respondents
RNA	Staf CLAS	Staf CLAS	9
	11 Luchtmobiele Brigade	11 INFBAT	9
		12 INFBAT	14
	13 Gemechaniseerde Brigade	C en Staf 13 MECHBRIG	13
		11 TKBAT	9
		13 HRSTCIE	11
		11 AFRDA	8
		42 BVE	8
	43 Gemechaniseerde Brigade	44 PAINFBAT	10
		11 PAGNBAT	10
	Operationeel Ondersteuningscommando Land (OOCL)	C en Staf OOCL	10
		101 CISBAT	9
		101 GNBAT	10
		330 HRSTCIE	9
	Opleidings- en Trainingscommando	OTCVUUST	8
		OTCGENIE	16
		OTCLOG	8
		OTCRIJ	9
		KMS	16
		OCIO	11
LO&S ORG		12	
RMC Noord	RMC Noord	7	
RMC Zuid	RMC Zuid	7	
Explosieven Opruimingsdienst Defensie (EODD)	EODD	12	
Ondersteuningsgroep CLAS (OGCLAS)	OGCLAS	5	

¹ In chapter 7 we speak of 5 levels in the Dutch Defence organization. We chose to combine the companies in order to get enough respondents per battalion to perform the preliminary analyses.

LEVEL 4 Branch of service	LEVEL 3 Units at the level of brigades (or similar)	LEVEL 2 Units at the level of battalions (or similar)	LEVEL 1 Number of respondents
RNAF	Staf CLSK	Staf CLSK	13
	Vliegbasis Gilze-Rijen/DHC	Vliegbasis Gilze-Rijen/ DHC	12
	Vliegbasis Leeuwarden	Vliegbasis Leeuwarden	9
	Vliegbasis Woensdrecht	Vliegbasis Woensdrecht	12
RNN	Directie Operaties	CZSK DOPS	11
	Directie Operationele Ondersteuning	CZSK DOST	6
	Commandant der Zeemacht Caribisch Gebied (CZM CARIB)	CZM CARIB	5
RNM	District Landelijke en Buitenlandse eenheden (DLBE)	DLBE	13
	District Schiphol	District Schiphol	10
	District West	District West	10
	District Zuid	District Zuid	12
JSC	Bedrijfsgroep Catering (BG CAT)	BG CAT	14
	Bedrijfsgroep Dienst Personele Diensten (BG DPD)	BG DPD	21
	Bedrijfsgroep Facility Services (BG FS)	BG FS	5
	Bedrijfsgroep Gezondheidszorg (BG GZ)	BG GZ	14
	Bedrijfsgroep IVENT (BG IVENT)	BG IVENT	7
	Bedrijfsgroep Transport (BG T)	BG T	15
	Nederlandse Defensie Academie (NLDA)	NLDA	10
	Bedrijfsgroep Dienst Vastgoed Defensie (BG DVD)	BG DVD	9
DMO	Directie Logistieke Bedrijven	LCW	10
		LBB	8
	Directie Planning & Control	Directie Planning & Control	9
CS	Audit Dienst Defensie (ADD)	ADD	5
	Militaire Inlichtingen- en Veiligheidsdienst (MIVD)	MIVD	4
N = 7	N = 33	N = 49	N = 494
Legend: RNA Royal Netherlands Army RNAF Royal Netherlands Air Force RNN Royal Netherlands Navy RNM Royal Netherlands Marechaussee DMO Defence Materiel Organization JSC Joint Support Command CS Central Staff			

Table VIII-0-1 Sample units Dutch Defence organization

Results preliminary tests

Table VIII-2 provides the F test values from a one-way random effects ANOVA in which the variable of interest (i.e., perceived quality of material resources management, hard and soft controls and military culture) is the dependent variable and unit membership is the independent variable.

Construct	F ratio	ICC(1)	ICC(2)
Material resources management	1,773**	.127	.436
Hard controls	2,115***	.112	.527
Soft controls	2,003***	.126	.500
Military culture	8,110***	.432	.877

Table VIII-0-2 F-ratio ANOVA, ICC(1) and ICC(2)

The results of the one-way ANOVA with a F-ratio of > 1 and a significance level of $< .05$ are significant. This is the case for 'the perceived quality of material resources management' meaning that there is a significant difference in the average scores on perceived quality of material resources management between the organizational units. This also applies for 'hard controls' and 'soft controls MRM'. Finally, the significant ANOVA result of 'military culture' implies that there is a significant difference in culture between the organizational units. Table VIII-2 also provides intraclass correlation coefficient results, ICC(1) and ICC(2), for the same variables of interest. The ICC(1) represents the amount of variance in any one individual's response that can be explained by group membership (Bliese, Halverson and Schriesheim, 2002: 11). The formula for the ICC(1) is based upon a one-way random effects ANOVA and is provided in Figure VIII-1 (Bliese, 1998: 357; Bliese and Halverson, 1998: 168).

$$ICC(1) = \frac{MS_B - MS_W}{MS_B + [(N_G - 1) * MS_W]}$$

Figure VIII-0-1 Formula ICC(1)

In the equation MS_B is the 'Between-group Mean Square', MS_W is the 'Within-group Mean Square' and N_G is the group size.

In situations where group sizes differ considerably, it is recommended that N_G is calculated with the formula presented in Figure VIII-2 (Bliese and Halverson, 1998: 168). In this formula N_i represents the number of cases in each group and k represents the number of groups.

$$N_G = \frac{1}{k-1} \left[\sum_{i=1}^k N_i - \frac{\sum_{i=1}^k N_i^2}{\sum_{i=1}^k N_i} \right]$$

Figure VIII-0-2 Formula NG

De ICC(2) estimates the reliability of the group means and is also calculated from the components of a one-way random effects ANOVA and is presented in Figure VIII-3 (Bliese, 1998: 360).

$$ICC(2) = \frac{MS_B - MS_W}{MS_B}$$

Figure VIII-0-3 Formula ICC(2)

According to Klein et al. (2000: 521) the rule of thumb regarding ICC(1) is when the F-test is significant test lower level data can be aggregated to higher units of analysis. De F-test of the ICC(1) values in Table 2 were all significant and show that 12,7% of the variance in individual level responses regarding 'material resources management' can be explained by the group-level properties (Bliese and Halverson, 1998: 168). The same applies to 11,2% of the variance regarding 'Hard controls'; 12,6% of the variance regarding 'Soft controls material resources management' and 43,2% of the variance in 'Military culture'.

Another perspective is that aggregation is appropriate if the group means of the aggregate variable can be reliably differentiated from each other. As ICC(2) is a measure of the reliability of the group means on an aggregate variable, it can be interpreted in a similar fashion to other reliability measures; that is, "Common practice suggests that values of .70 and higher are acceptable, values between .50 and .70 are marginal, and values lower than .50 are poor" (Klein et al., 2000: 518). That is, usually only ICC(2) values of at least .70 are considered acceptable for aggregation. However, these cut off-values are somewhat arbitrary since Bliese, Halverson and Schriesheim (2002: 11) use a criterion for the ICC(2) of between .60 and .70 as a cut off-value and Glick (1985: 609) uses a cut off-value of $> .60$. while Bliese & Jex (2002: 274) even suggest any value of the ICC(2) > 0 .

Striking and affirmatively is the similarity between the significant ANOVA-results and the ICC-values. The constructs of the dependent variables, hard controls, soft controls and military culture, have satisfying ICC(2) values of $> .5$. And also the dependent variable, material resources management, shows an ICC(2) value of $> .4$. This gives us reason to believe that there is a case to perform multilevel analyses in the way of entering the results of the auditreports at unit level into the regression analyses.

APPENDIX IX Checklists auditor reports

Categorization Management of Weapons

(1 = careful management of weapons; 0 = careless management of weapons)

Items in checklist	Categorization
2.2 Weapons_Is adequate action taken in respect of the findings of an increased risk for shortages?	SC Congruency
3.1 Weapons_Does the unit have all recent regulations regarding the management of weapons?	HC Rules and procedures
3.2 Weapons_Are the job descriptions for the small-calibre weapon administrators current and signed?	HC Registration
3.3 Weapons_Do the small-calibre weapon administrators meet the requirements in the job descriptions regarding training and courses?	SC Feasibility
3.4 Weapons_Does the unit have the necessary permits for the civil staf, in accordance with the "Regeling wapens en munitie Krijgsmachtpersoneel 1997"?	HC Rules and procedures
3.5 Weapons_Has an officer been appointed as physical administrator of the armoury?	HC Segregation of duties
4.1 Weapons_Have the (additional) requirements for administrative management of sensitive materiel been met?	HC Rules and procedures
4.2 Weapons_Have the authorizations been documented and are there no unexplained differences for weapons?	HC Registration
4.3 Weapons_Is the issuing of weapons on (personal) loans in order?	Dependent variable
4.4 Weapons_Are weapons transferred both in the management system and in "CWRS" when they are physically transferred to other units (for example because of military deployment)?	HC Registration
4.5 Weapons_Are the underlying instructions for the use of "CWRS" described?	HC Rules and procedures
4.6 Weapons_Does the commander of the unit review the local control measures on a yearly basis?	SC Congruency
5.1 Weapons_Are the appropriate physical security measures taken in the central storage of weapons?	HC Rules and procedures
5.2 Weapons_Does the unit comply with the storage requirements?	HC Rules and procedures
5.3 Weapons_Is there adequate segregation of duties between the physical and administrative manager and are their duties and powers entered in a register of authorities?	HC Segregation of duties
6.1 Weapons_Is the mandatory recordkeeping carried out by an independent expert?	HC Segregation of duties
6.2 Weapons_Has the unit executed the mandatory record keeping over the past period?	HC Rules and procedures
6.3 Weapons_Have the scan data been submitted to the central database "CWRS" after the execution of the mandatory record keeping?	HC Registration
7.1 Weapons_Is the central (CWRS) and decentralized (BBS) registration of weapons in accordance with each other?	HC Registration
7.2 Weapons_Have the appropriate measures been taken in "CWRS" when transportation time is exceeded?	HC Rules and procedures
7.3 Weapons_Are the weapons of the unit in the central weapon storage (armoury) according to the administration actually physically present?	Dependent variable

7.4 Weapons_ Are adequate source documents present for the weapons that are outside the central storage (armoury)?	Dependent variable
7.5 Weapons_ Has there been no registration of weapons (other than small-calibre weapons) in "CWRS which according to annex 12B VMD" should not have been registered?	HC Registration
8.1 Weapons_ Are the special weapons ready for use that are registered in the equipment administration and "CWRS" actually present?	Dependent variable
9.1 Weapons_ Has the unit performed the correct actions for identified security incidents according to Designation SG A/963 (reporting incidents) and the Regulation of Management of Materiel DOD (chapter 11.4 Procedure loss of sensitive materiel)?	HC Registration SC Transparency
9.2 Weapons_ Has there been reporting without delay to the Royal Netherlands Marechaussee in the event of a loss?	HC Registration SC Transparency
9.3 Weapons_ Was a copy of the report of loss (Royal Netherlands Marechaussee) sent to the Defence Materiel Organization (Super user CWRS)?	HC Registration

Categorization Management of Cryptographical equipment

(1 = careful management of cryptographical equipment; 0 = careless management of cryptographical equipment)²

Items in checklist	Categorization
2.1 Crypto_ It is possible to rely on the audits of crypto keys and –publications by DEFDA.	HC Internal auditing
2.2 Crypto_ Findings from previous audits that require corrective actions immediately or in the short term (the so-called items in bold) are resolved and/or executed.	SC Congruency
3.1.1 Crypto_ The commander/head of the unit has designated a sufficient number of officials to carry out the various crypto tasks.	SC Feasibility
3.1.2 Crypto_ Somebody has been appointed in “CCIRS” to authorize the record keeping carried out.	HC Segregation of duties
3.2.1 Crypto_ The administrator of crypto-equipment and INFOSEC officers have the proper security permissions (Declaration of no objection).	HC Rules and Procedures
3.2.2 Crypto_ The administrator of crypto- equipment and INFOSEC officers have the correct crypto authorisation.	HC Rules and Procedures
3.2.3 Crypto_ The declaration of confidentiality (statement of knowledge) regarding his/her function has been drawn up and found.	HC Rules and Procedures
3.2.4 Crypto_ When the administrator of crypto-equipment is retired there is a statement of retirement drawn up and present.	HC Rules and Procedures
3.2.5 Crypto_ When the administrator of crypto-equipment is replaced there is a report of handover/takeover drawn up and present.	HC Rules and Procedures
3.3 Crypto_ The administrators of crypto-equipment have undergone or requested the required training and courses.	SC Feasibility
4.1 Crypto_ There are no unexplained differences in authorization of crypto equipment.	Dependent variable
5.1 Crypto_ The crypto archive and the inventory list (CCIRS) meets the requirements.	HC Registration
5.2 Crypto_ Crypto-equipment has been provided on ROC or (temporary) loan and this ROC or loan is present and meets the requirements.	HC Registration
5.2a Crypto_ The digital ROC or (temporary) loan is present and younger than one year (or older but with a valid reason).	HC Rules and Procedures
5.3.1 Crypto_ The digital ROC or maintenance call is present.	HC Registration
5.3.2 Crypto_ The maintenance call was complete (series/attribute number, follow/repair number and signature are present).	HC Registration
6.1 Crypto_ The emergency destruction plan of the administrator of crypto- equipment meets the requirements (apply only to “out of area” situations).	HC Rules and Procedures
6.2 Crypto_ Crypto-equipment has been properly removed and reported to DEFDA.	HC Rules and Procedures
7.1.1 Crypto_ The administrator of crypto- equipment has carried out the mandatory record keeping correctly over the past period.	HC Rules and Procedures
7.1.2 Crypto_ There are notes or audit trails found in the archive which shows that there has been occasional record keeping and/or reporting to IC&CIS agency.	HC Internal auditing
7.1.3 Crypto_ The record keeping executed are authorized by the appointed assessor.	HC Segregation of duties
8.1 Crypto_ There is administrative agreement between the management systems and CCIRS and the physical presence of “CCI” crypto-equipment.	Dependent variable

² In the original checklist of Cryptographical equipment all items were put in a negative way. Therefore we had to reverse them so that the score of 1 still means that the equipment was carefully managed.

8.2 Crypto_ There is administrative agreement between the management systems and CCIRS from "CCI-CCI-M" and "A" from crypto-equipment.	HC Registration
8.3 Crypto_ There is agreement between the physical and administrative presence of specific "CCI-M/A" crypto-equipment of the unit.	Dependent variable
8.4 Crypto_ All crypto-equipment is equipped with the prescribed "CCI-marking".	HC Registration
8.5 Crypto_ All equipment "loaded with a classified crypto key" meet the security requirements.	HC Rules and procedures
8.6 Crypto_ All unloaded crypto-equipment meet the security requirements.	HC Rules and procedures
9.1 Crypto_ The unit has performed the correct actions after identifying one or more losses according to Designation SG A/963 (reporting incidents) and the Regulation of Management of Materiel DOD (chapter 11.4 Procedure loss of sensitive materiel)?	HC Registration SC Transparency
9.2 Crypto_ In the event of a loss there has been reporting without delay to the Royal Netherlands Marechaussee.	HC Registration SC Transparency
9.3 Crypto_ Reports of missing are present and the reports are properly dealt with according to the regulation of redress.	HC Registration

Categorization Management of Ammunition

(1 = careful management of ammunition; 0 = careless management of ammunition)

Items in checklist	Categorization
2.2 Ammunition_ Findings from previous audits that require corrective actions are resolved and/or executed.	SC Congruency
2.3 Ammunition_ Does the unit have an emergency plan, an up-to-date overview of ammunition storage/emergency list and an inspection plan of the quality of ammunition stockpiles?	HC Rules and procedures
2.4 Ammunition_ Does the unit have an environmental permit, an environmental logbook and a current risk analysis?	HC Rules and procedures / HC Risk analysis
3.1 Ammunition_ Are the job descriptions current and signed?	HC Registration
3.2 Ammunition_ Do the employees meet the requirements in the job descriptions regarding training and courses?	SC Feasibility
4.1 Ammunition_ When assigning roles and profiles to the employees, was taken into account the minimum level of segregation of duties?	HC Segregation of duties
4.2 Ammunition_ Is the location with the environmental permit correctly recorded in WMS?	HC Registration
4.3 Ammunition_ Is the assignment and authorization of ammunition correctly recorded in WM-TF?	HC Registration
5.1 Ammunition_ Has the unit executed the mandatory record keeping over the past period?	HC Rules and procedures
5.2 Ammunition_ Has the unit executed the (self)audits required over the past period?	HC Internal auditing
6.1 Ammunition_ Is the registration of the stocks on stack identification cards reliable and does it meet the requirements?	HC Registration
6.2 Ammunition_ Does the physical inventories according to the stack identification cards match the administrative stocks?	Dependent variable
6.3 Ammunition_ Are the differences between the orders and stocks in WMS KI V and WM-TF explained?	HC Registration
7.1 Ammunition_ Does the design of the storage spaces (ammunition depots/WMS-bunkers) meet the requirements according MP 40-21?	HC Rules and procedures
7.2 Ammunition_ Does the storage of ammunition meet the environmental permit and the rules of mixed loading?	HC Rules and procedures
7.3 Ammunition_ Does the emergency plan and the overview of ammunition storage / emergency list meet the requirements and is the overview of ammunition storage / emergency list adapted when change in stocks occur?	HC Rules and procedures
7.4 Ammunition_ Have the access authorizations and -procedures for the ammunition bunkers been followed?	HC Rules and procedures
8.1 Ammunition_ Does the regular receipt of ammunition (horizontal transfers) meet the requirements (procedures and accountability)?	HC Rules and procedures
8.2 Ammunition_ Is the use of ammunition because of regular requests (including returns) lawful (i.e. substantiated with legitimate signed source documents)?	Dependent variable
8.3 Ammunition_ Has the ammunition been delivered to third parties in the proper manner (no transfer or dispatch)?	Dependent variable
8.4 Ammunition_ Are the remaining inventory adjustments of the ammunition supply legitimate?	Dependent variable
9.1 Ammunition_ Is the quality of ammunition determined and recorded in the right way when included in the stock?	HC Registration
9.2 Ammunition_ Does the periodic ammunition inspections take place timely and properly?	HC Internal auditing

10.1 Ammunition_ Does the unit have all relevant regulations regarding the management of ammunition?	HC Rules and procedures
10.2 Ammunition_ Are outstanding ASN's periodically assessed and can all long outstanding ASN's be explained?	HC Internal auditing
10.3 Ammunition_ Does the management of ammunition which is internally provided meet the requirements?	HC Procedures
10.4 Ammunition_ Does the storage of ammunition in special storage areas (weapon lockers, special cabinets, munitions behalter, ammunition cabinets and architectural cabinets) meet the requirements of MP 40-21?	HC Rules and procedures
10.5 Ammunition_ Does the management of the exercise-, instruction and exhibition ammunition meet the physical and administrative requirements and is this ammunition physically present?	HC Rules and procedures
10.6 Ammunition_ Have the remaining procedures and safety regulations for ammunition been applied?	HC Rules and procedures
11.1 Ammunition_ Has the unit performed the correct actions for identified security incidents according to Designation SG A/963 (reporting incidents) and the Regulation of Management of Materiel DOD (chapter 11.4 Procedure loss of sensitive materiel)?	HC Registration SC Transparency

APPENDIX X Regression models using employee opinion

Weapons_respondents (N = 155)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	5.24***	5.02***	4.80***	3.33***	3.44***	3.39***
Gender	-.05	-.06	-.06	-.04	-.04	-.04
Age	.05	.09	.08	.10	.10	.10
Military culture		.10	.12	.08	.07	.06
Hard controls			.07	-.02	-.04	-.05
Soft controls				.29***	.29**	.30**
Hard controls x military culture					.04	.04
Soft controls x military culture					.03	.05
Hard controls x soft controls						.07
R ²	.01	.01	.02	.10	.10	.10
Adjusted R ²	-.01	-.01	-.01	.07	.05	.05
F statistic	.36	1.34	.74	12.69***	.15	.65

* p < .05; ** p < .01; *** p < .001. two-tailed test; † p < .10

Crypto_respondents (N = 149)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	5.16***	4.75***	4.36***	2.35***	2.36**	2.35**
Gender	-.01	-.04	-.03	-.00	-.00	-.00
Age	-.06	.01	-.01	.01	.02	.02
Military culture		.18*	.21*	.15[†]	.14	.14
Hard controls			.13	.02	-.01	-.01
Soft controls				.39***	.40***	.40***
Hard controls x military culture					.04	.04
Soft controls x military culture					-.02	-.02
Hard controls x soft controls						.01
R ²	.00	.03	.05	.18	.18	.18
Adjusted R ²	-.01	.01	.02	.15	.14	.14
F statistic	.26	4.27*	2.50	23.29***	.12	.02

* p < .05; ** p < .01; *** p < .001. two-tailed test; † p < .10

Ammunition_respondents (N = 146)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	5.09***	5.17***	4.87***	3.55***	4.33***	4.23***
Gender	-.08	-.08	-.07	-.06	-.08	-.07
Age	.09	.08	.07	.09	.11	.10
Military culture		-.03	-.01	-.04	-.07	-.09
Hard controls			.09	.04	-.01	-.02
Soft controls				.22*	.13	.15⁺
Hard controls x military culture					.04	.04
Soft controls x military culture					.26**	.34**
Hard controls x soft controls						.20*
R ²	.01	.01	.02	.07	.13	.16
Adjusted R ²	.00	-.01	-.01	.03	.08	.11
F statistic	.98	.14	1.08	6.56*	4.89**	4.95*
* p < .05; ** p < .01; *** p < .001. two-tailed test; ⁺ p < .10						

Sensitive material management_respondents (N = 160)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	5.14***	4.92***	4.53***	2.97***	3.38***	3.29***
Gender	-.06	-.07	-.06	-.04	-.06	-.05
Age	.05	.08	.07	.08	.09	.09
Military culture		.11	.14	.11	.09	.08
Hard controls			.14	.05	.05	.04
Soft controls				.32***	.25**	.27**
Hard controls x military culture					-.02	-.02
Soft controls x military culture					.19*	.23*
Hard controls x soft controls						.12
R ²	.01	.02	.03	.13	.16	.17
Adjusted R ²	-.01	-.00	.01	.10	.12	.12
F statistic	.38	1.63	2.90	16.80***	2.47	1.90
* p < .05; ** p < .01; *** p < .001. two-tailed test; ⁺ p < .10						

APPENDIX XI Regression models using auditor opinion

Weapons_auditors (N = 93)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.44	.71**	.71*	1.00*	.98*	.94*
Gender	-.07	.00	.00	-.01	-.00	.00
Age	.22*	.13	.13	.12	.13	.12
Military culture_respondents		-.35**	-.35**	-.34**	-.34**	-.34**
Hard controls_respondents			.00	.04	.01	.00
Soft controls_respondents				-.11	-.09	-.07
Military culture x hard controls					.07	.07
Military culture x soft controls					-.02	-.01
Hard controls x soft controls						.05
R ²	.05	.16	.16	.17	.17	.18
Adjusted R ²	.03	.13	.12	.12	.11	.10
F statistic	2.40	11.52**	.00	1.15	.20	.20

* p < .05; ** p < .01; *** p < .001. two tailed-test; + p < .10 (quasi-significant)

Crypto_auditors (N = 100)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.88**	.71**	.77**	.43	.32	.30
Gender	-.13	-.16	-.16	-.13	-.14	-.14
Age	.09	.15	.15	.16	.17	.18
Military culture_respondents		.19	.19	.19	.23*	.25*
Hard controls_respondents			-.08	-.10	-.06	-.00
Soft controls_respondents				.11	.13	.11
Military culture x hard controls					-.12	-.19
Military culture x soft controls					-.09	-.05
Hard controls x soft controls						-.15
R ²	.02	.06	.06	.07	.09	.11
Adjusted R ²	.00	.03	.02	.03	.03	.03
F statistic	1.17	3.37	.61	1.16	1.06	1.39

* p < .05; ** p < .01; *** p < .001. two tailed-test; + p < .10 (quasi-significant)

Ammunition_auditors (N = 40)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.72	.56	.80	.04	.19	-.50
Gender	.01	-.02	-.03	.01	.02	.10
Age	-.02	.01	-.00	.09	.05	.05
Military culture_respondents		.17	.12	.16	.07	.09
Hard controls_respondents			-.09	-.36	-.20	.08
Soft controls_respondents				.38	.26	.24
Military culture x hard controls					.34	.35
Military culture x soft controls					-.55	-.43
Hard controls x soft controls						.45*
R ²	.00	.03	.03	.09	.15	.24
Adjusted R ²	-.05	-.06	-.08	-.05	-.04	.05
F statistic	.01	.95	.23	2.03	1.12	4.00*
* p < .05; ** p < .01; *** p < .001. two tailed-test; + p < .10 (quasi-significant)						

Sensitive material management_auditors (N = 149)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.55**	.61**	.63**	.44	.28	.24
Gender	-.07	-.06	-.06	-.04	-.01	-.02
Age	.19*	.16+	.16+	.17+	.15+	.15+
Military culture		-.08	-.08	-.08	-.06	-.07
Hard controls			-.03	-.04	-.02	-.07
Soft controls				.08	.12	.16+
Hard controls x military culture					-.01	.04
Soft controls x military culture					-.16+	-.15
Hard controls x soft controls						.14
R ²	.04	.04	.04	.05	.07	.08
Adjusted R ²	.02	.02	.02	.02	.02	.03
F statistic	2.78	.78	.09	.82	1.70	2.12
* p < .05; ** p < .01; *** p < .001. two tailed-test; + p < .10 (quasi-significant)						

About the author

About the author

Jacqueline Heeren-Bogers was born in Breda on April 12, 1971. After graduating pre-university education she started in 1989 the Master of Business Administration at Erasmus University Rotterdam. In 1994 she did an internship and graduation research at the Control Department of the Education and Training Command of the Army. After a few planning and control staff functions in the Army, in 1998, she became head of the section Policy assessment & Audits of the Royal Military Academy. In this function she was among others responsible for assessing the implementation of the improvement plans financial and material resources management.

In 2002 she switched to teaching Defence Economics at the Faculty of Military Sciences of the Netherlands Defence Academy. As an assistant professor she is involved in developing, coordinating and teaching the courses Defence Economics and Logistics, Accounting Control & Economics and Defence Management Accounting & Control. In addition, she is a study mentor and supervisor of bachelor theses. Finally, for the Higher Defence Education, she coordinates the process of thesis supervision by the Faculty of Military Sciences and acts as a supervisor as well.

In 2009 she started PhD research on the management control system of the Dutch Defence organization. This research focuses on which specific controls influence careful financial and material resources management. She has presented her research at the EURAM Conference in Poland and she held a workshop at the Conference of Integrity of the Defence Organization. One article has been published in an academic journal in Dutch, whereas she contributed several book chapters to edited volumes and one article to a professional journal.

Jacqueline is married to Rob and together they are the proud parents of Ryan (2006).

Joint Support Command Netherlands Defence Academy
Faculty of Military Sciences
Postbox 90002
4800 PA Breda
jjd.heeren.bogers@mindef.nl

