The use of hard and soft controls within Dutch Small and Medium Sized Entities

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# Voorwoord

Beste lezer,

Eindelijk, een tastbaar eindproduct. Een thesis over ‘in control’. Misschien dat ik het dan eindelijk eens leer. De lange weg naar deze thesis toe heeft niet vaak de indruk gewekt dat ik zelf ‘in control’ ben wanneer het gaat om het afronden van een studie. Toch zijn dit echt de laatste loodjes voor mijn master Accounting, Auditing & Control. En op een herkansing na is ook de postdoctorale opleiding Accountancy inmiddels in de pocket.

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# Abstract

This study investigates how hard and soft controls are used within small and medium sized entities. Based on the existing literature on control systems and prior research on the use of hard and soft controls, different types of hard and soft controls are listed. Hypotheses are developed with regard to the coherence between the complexity of an entity, in terms of ex-ante and ex-post uncertainty, and de use of hard and soft controls, the coherence between the size of an entity and the use of hard and soft controls, the coherence between hard controls and soft controls, the coherence between different types of hard controls and the coherence between different types of soft controls. Hypothesis are tested, based on data obtained from the audit files and involved auditors regarding the annual audits of 25 small and medium entities. Results show that there are negative significant correlations between the ex-ante and ex-post uncertainty of a system to control and the use of hard controls. A positive significant correlation is found between soft controls and the ex-ante uncertainty of a system to control. No significant correlation is found between the ex-post uncertainty and the use of soft controls and company size and the use of hard and soft controls. A positive significant correlation is found between the use of different types of hard controls and between the use of different types of soft controls. The presence of the different types of hard controls does not differ, while the presence of the different types of soft controls does.

# Contents

[Voorwoord 2](#_Toc364282311)

[Abstract 3](#_Toc364282312)

[Contents 4](#_Toc364282313)

[1 Introduction 7](#_Toc364282314)

[1.1 Relevance 7](#_Toc364282315)

[1.1.1 Scientific relevance 7](#_Toc364282316)

[1.1.2 Business relevance 7](#_Toc364282317)

[1.2 Research question 8](#_Toc364282318)

[1.3 Structure 9](#_Toc364282319)

[2 Literature Review 11](#_Toc364282320)

[2.1 Introduction 11](#_Toc364282321)

[2.2 What is an entity? 12](#_Toc364282322)

[2.2.1 Introduction 12](#_Toc364282323)

[2.2.2 Smith 12](#_Toc364282324)

[2.2.3 Coase and Williamson 13](#_Toc364282325)

[2.2.4 General system theory 13](#_Toc364282326)

[2.2.5 Alchian and Demsetz 14](#_Toc364282327)

[2.2.6 Jensen and Meckling 15](#_Toc364282328)

[2.2.7 Cressey 16](#_Toc364282329)

[2.2.8 Conclusion 16](#_Toc364282330)

[2.3 What is control? 18](#_Toc364282331)

[2.3.1 Introduction 18](#_Toc364282332)

[2.3.2 Fayol 18](#_Toc364282333)

[2.3.3 McGregor 18](#_Toc364282334)

[2.3.4 Anthony 19](#_Toc364282335)

[2.3.5 Hopwood 19](#_Toc364282336)

[2.3.6 Ouchi 20](#_Toc364282337)

[2.3.7 Hofstede 21](#_Toc364282338)

[2.3.8 Merchant 22](#_Toc364282339)

[2.3.9 Mintzberg 24](#_Toc364282340)

[2.3.10 COSO 27](#_Toc364282341)

[2.3.11 Simons 28](#_Toc364282342)

[2.3.12 Spekle 30](#_Toc364282343)

[2.3.13 Conclusion 32](#_Toc364282344)

[2.4 What are hard and soft controls? 36](#_Toc364282345)

[2.4.1 Roth 36](#_Toc364282346)

[2.4.2 De Heus en Stremmelaar 36](#_Toc364282347)

[2.4.3 Kaptein 37](#_Toc364282348)

[2.4.4 COSO 38](#_Toc364282349)

[2.4.5 Vink en Kaptein 40](#_Toc364282350)

[2.4.6 Katz-Navon et. al. 41](#_Toc364282351)

[2.4.7 Conclusion 41](#_Toc364282352)

[3 Research 45](#_Toc364282353)

[3.1 Hypothesis 45](#_Toc364282354)

[3.1.1 Introduction 45](#_Toc364282355)

[3.1.2 Complexity and the use of hard- and soft controls 46](#_Toc364282356)

[3.1.3 Entity size and the use of hard and soft controls 47](#_Toc364282357)

[3.1.4 Hard and soft controls 48](#_Toc364282358)

[3.1.5 Hard controls 48](#_Toc364282359)

[3.1.6 Soft controls 49](#_Toc364282360)

[3.2 Variables 50](#_Toc364282361)

[3.2.1 Introduction 50](#_Toc364282362)

[3.2.2 Complexity and the use of hard- and soft controls 50](#_Toc364282363)

[3.2.3 Entity size and the use of hard and soft controls 52](#_Toc364282364)

[3.2.4 Hard and soft controls 53](#_Toc364282365)

[3.2.5 Hard controls 53](#_Toc364282366)

[3.2.6 Soft controls 53](#_Toc364282367)

[3.3 Data 53](#_Toc364282368)

[3.4 Empirical approach 54](#_Toc364282369)

[3.4.1 Introduction 54](#_Toc364282370)

[3.4.2 Complexity and the use of hard- and soft controls 55](#_Toc364282371)

[3.4.3 Entity size and the use of hard and soft controls 56](#_Toc364282372)

[3.4.4 Hard and soft controls 56](#_Toc364282373)

[3.4.5 Hard controls 56](#_Toc364282374)

[3.4.6 Soft controls 57](#_Toc364282375)

[4 Results 58](#_Toc364282376)

[4.1 Introduction 58](#_Toc364282377)

[4.2 Complexity and the use of hard- and soft controls 58](#_Toc364282378)

[4.3 Entity size and the use of hard and soft controls 60](#_Toc364282379)

[4.4 Hard and soft controls 63](#_Toc364282380)

[4.5 Hard controls 63](#_Toc364282381)

[4.6 Soft controls 64](#_Toc364282382)

[5 Discussion 66](#_Toc364282383)

[5.1 Introduction 66](#_Toc364282384)

[5.2 Complexity and the use of hard- and soft controls 66](#_Toc364282385)

[5.3 Entity size and the use of hard and soft controls 67](#_Toc364282386)

[5.4 Hard and soft controls 67](#_Toc364282387)

[5.5 Hard controls 68](#_Toc364282388)

[5.6 Soft controls 68](#_Toc364282389)

[6 Conclusion 70](#_Toc364282390)

[6.1 Introduction 70](#_Toc364282391)

[6.2 Conclusion 70](#_Toc364282392)

[6.3 Limitations 72](#_Toc364282393)

[6.4 Recommedations for further research 73](#_Toc364282394)

[7 References 74](#_Toc364282395)

[Appendices 76](#_Toc364282396)

[Appendix 1 - Questionnaire 76](#_Toc364282397)

[Appendix 2 – Results overview 77](#_Toc364282398)

[General 77](#_Toc364282399)

[Complexity and the use of hard- and soft controls 78](#_Toc364282400)

[Entity size and the use of hard and soft controls 81](#_Toc364282401)

[Hard and soft controls 84](#_Toc364282402)

[Hard controls 86](#_Toc364282403)

[Soft controls 87](#_Toc364282404)

# Introduction

## Relevance

### Scientific relevance

In 1976 Jensen and Meckling came to the agency theory. Their first assumption is that there is a conflict of interest in the relationship between the principal and the agent. Their second assumption is that the principal is unable to identify the activities of the agent and the goals of these activities because there is information asymmetry.

The agency theory shows the need for organizations to have a system of internal control in place to ensure that employees perform what the employer asks of them. According to Anthony (1965) control is *“the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization’s objectives.”*

Since then there has been much research into control and control systems. I.e. by Ouchi (1979), Mitzberg (1979), Merchant (1982) and Simons (1995). Often a distinction is made between hard and soft controls. De Heus and Stremmelaar (2000) defines hard controls as “measures that could lead to direct other visible behavior or actions" and soft controls as “controls […] which may affect the values, beliefs and personality of employees.” Inherent in hard controls is that they are visible and therefore easy to measure. Soft controls and their effects are more difficult to observe.

A consequence of this is that most empirical research is about hard controls. Research on soft controls consists largely of recognizing the existence of soft controls and a theoretical interpretation of this. Only a few studies (i.e. Vink and Kaptein, 2008) focus on the practical application of soft controls.

The scientific relevance of this thesis is that it contributes to the research to the application of hard and soft controls in practice. This thesis will focus on the relationship between hard and soft controls within SMEs.

### Business relevance

The past decade, in the public debate has been attention to the ethical behavior of companies, their boards and their employees. Major fraud scandals include Enron (2001), Ahold (2003) and Parmalat (2003) showed that improvement of the behavior in the boardrooms was necessary.

Recently revealed that there is still a lot wrong with the promotion of certain values within organizations. Examples include the problems at SNS REAAL, Ahold, DSB and Vestia. The discussion about organizational behavior is still relevant. Last year, a clear example of this manifested in cycling. The doping scandals revealed that despite all the 'hard controls', such as doping controls and the doping policies of the cycling teams, a lack of soft controls made it possible to use doping.

The examples cited show that the so-called hard-controls within these organizations were not sufficient to prevent scandals. In the past few years it has become more and more clear that soft controls within organizations, such as exemplary behavior and involvement, are essential to keep the organization 'in control'.

In the public debate there has been a lot of attention for the behavior of board-members and employees within organizations. In 2003, in the Netherlands the Dutch Corporate Governance Code arose. This is a code of conduct for listed companies. This code aims to improve transparency in the financial statements, improved accountability to the supervisory board and to strengthen the control and protection of shareholders.

About the demise of ABN-AMRO appeared in the 2008 book 'the perfect prey', which revealed that the fall of the bank is largely caused by a lack of ethical values ​​in the boardroom.

Also the discussion paper “Tone at the Top: Can accountants make a difference ?", which was released in September 2012 by the Nederlandse Beroepsorganisatie voor Accountants (NBA), shows that behavior within organizations is still an actual topic.

The scandals at Ahold, Vestia and ABN AMRO and the doping scandals in cycling, filled the front pages of the newspapers for weeks, which is understandable considering the impact of those scandals. So it is also understandable that the Dutch Corporate Governance Code only focuses on listed companies because of the huge social importance of good corporate governance in these organizations.

Still, also within Small- and Medium Sized Entities (SME’s) hard and soft-controls are a relevant subject. Often more than in large organizations, acting in SME’s is based on trust, which can be a cause or consequence of a less adequate system of hard-controls. This study therefore focuses on the use of hard and soft controls within SMEs.

## Research question

The purpose of this research is to show how Dutch Small and Medium Sized entities (SME’s) use hard- and soft-controls to keep their organizations in control. This study will focus on the extent to which SMEs use hard and soft controls and on how hard controls and soft controls relate to each other. It will also be examined which hard controls and soft controls play a role in the control of SME’s.

The research question of this research is:

*How do Dutch Small and Medium Sized entities (SME’s) use hard- and soft-controls to keep their organizations ‘in control’?*

## Structure

This thesis is structured as follows: In chapter 2 the theoretical framework is discussed. It contains the relevant literature and some important definitions. In chapter 2.2 the question ‘What is an entity’? will be answered. There will be discussed how a company can be characterized and why agency-problems arise. In chapter 2.3 will be answered how the concept of ‘control’ can be defined. Also different types of control systems and the main reasons for de choice of a particular control system will be presented. In chapter 2.3, the distinction between hard and soft controls will be made and different types of hard and soft controls will be listed.

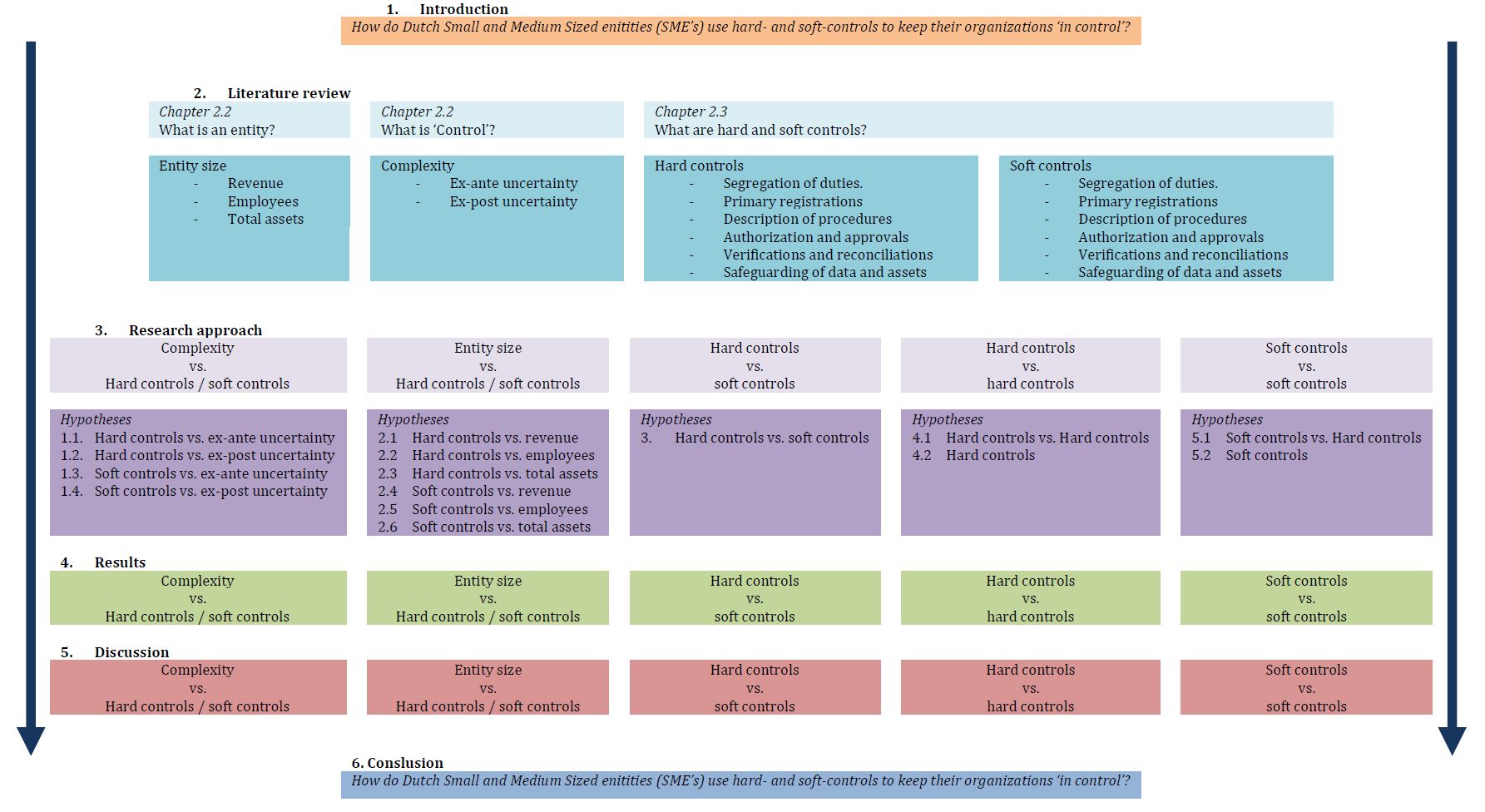
Based on the discussed literature hypotheses are formulated in chapter 3. Hypotheses will be formulated regarding:

* + The coherence between the complexity of an entity, based on the ex-ante and ex-post degree of uncertainty, and the relationship between hard- and soft controls.
  + The coherence between the size of an entity, based on the amounts of revenue, employees and total assets, and the density of controls.
  + The coherence between hard controls and soft controls and the coherence between different types of hard controls and the different types of soft controls.
  + The coherence within the different types of soft controls. And the coherence within the different types of hard controls.

In this chapter, also the variables, data and methodology for the empirical study are discussed.

In chapter 4 the results will be presented. For all of the hypothesis will be listed whether they are rejected or accepted. Also will be mentioned what the results mean in the context of the research question. Chapter 5 provides the discussion regarding the results. Finally, chapter 6 contains the conclusion of this research, which answers to the research question of this thesis. Also the limitations of this research and recommendations for further research will be listed.

The next page contains a schematic representation of this structure.



# Literature Review

## Introduction

In order to answer the research question it is necessary to define the concepts from which this question exists. Furthermore it is important to discuss the prior research on the topic of the use of hard and soft controls to define the research area and to formulate relevant hypotheses. This will be done in this literature review.

First has to be defined what an entity is en how control problems arise within entities. This will be done in chapter 2.2, by discussing the literature on this topic. First the work of Adam Smith will be discussed. He argued that due to the ‘invisible hand’ pursuing self-interest creates a market in which supply and demand are matched efficiently to each other. Thereupon the discussed transaction cost theory argues why, despite the efficient allocation of resources in a market, entities still occur, caused by transaction costs. As Smith already remarked, including the work of Jensen and Meckling and Alchian and Demsetz shows that agency problems within these entities arise, caused from the lack of an 'invisible hand' within an entity.

Chapter 2.3 explains how these agency problems can be controlled by control systems. The concept of ‘in control’, as included in the research question, will be defined. Also various control mechanisms to achieve control will be discussed, including the work of Ouchi (1979), Hofstede (1981), Merchant (1982), Mintzberg (1983) and Spekle (2001). Based on these descriptive studies the main characteristics of systems of control will be listed and there will be described on which factors the choice of a particular system of control depends.

In chapter 2.4 the distinction between hard controls and soft controls will be made. Also the concepts of hard controls and soft controls will be defined. There will be explained how hard controls and soft controls are being used in the systems of controls discussed in chapter 2.3. Based on the work of Kaptein (1998) and COSO (1992) different types of hard controls and soft controls will be listed and some prior research on the use of hard controls and soft controls will be mentioned.

Based on the literature review in this chapter, in order to answer the research question hypotheses are formulated in chapter 3.

## What is an entity?

### Introduction

This chapter will answer the question ‘what is an entity?’. There will be defined what an entity is and how agency problems undermine the function of entities. First the work of Adam Smith will be discussed. He argued that due to the ‘invisible hand’ pursuing self-interest creates a market in which supply and demand are matched efficiently to each other. Thereupon the discussed transaction cost theories argue why, despite the efficient allocation of resources in a market, entities still occur, caused by transaction costs. As Smith already remarked, including the work of Jensen and Meckling and Alchian and Demsetz shows that agency problems within these entities arise, caused from the lack of an 'invisible hand' within an entity.

### Smith

In his book *The Theory of Moral Sentiments* Adam Smith (1759) distinguishes three kinds of passions that man pursues:

* Unsocial passions, which imply a negative attitude towards third parties, such as hatred, rancor and resentment.
* Social passions, which imply a positive attitude towards others, such as generosity, kindness and compassion.
* Selfish passions, which are neutral to third parties and only relate to the ‘I’, such as sadness and joy.

Social harmony is not in the way by pursuing passions, because in their efforts to achieve their own desires without being aware, individuals follow a course of action that promotes the common good.

This "invisible hand" is also the central topic in Smith’s book "An Inquiry into the Nature and Causes of the Wealth of Nations" (1776). Smith's economic theory is based on the pursuit of self-interest that is regulated and led in the right direction by the existence of competition between people. This creates a market in which supply and demand are matched efficiently to each other. This will result in optimal social welfare.

Smith also points out the problems that the pursuit of self-interest entails. He wrote:

*“ The directors of such companies, however, being the managers rather of other people’s money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private coparnery frequently watch over their own.”*

When managers have no direct self-interest in a company, they will have less incentive to represent the interests of others. There may even be a conflicting interest.

### Coase and Williamson

The work of Smith as well as the work of Marshall (1897) show that profit maximization is the traditional purpose of a company. This assumption also underlies the work of Coase.

According to Smith market leads to an optimal allocation of resources. This implies that a market is the cheapest way to get transactions established. However, on the market a new contract will be agreed for each transaction.

Coase (1937) argues why entities arise in which transactions occur, despite the market is the most efficient way to establish transactions. His explanation is that by closing contracts there are “costs of using the price mechanism”, like costs for searching for parties and prices and costs for closing contracts. In later publications the term ‘transaction costs’ is used. Coase argues that activities will take place within an entity when the transaction costs for outsourcing these activities exceed the coordination costs for performing the activities themselves.

Williamson (1979) gives further substance to the ideas of Coase. He distinguishes three critical dimensions of transactions that affect the development of an entity:

* uncertainty,
* the frequency with which transactions recur, and
* the degree to which durable transaction-specific investments are incurred.

When the uncertainty and the frequency of a specific transaction increase and larger durable transaction-specific investments are needed, the creation of a company is more likely.

### General system theory

Von Bertalanffy (1972) defines a system as “a set of elements standing in interrelation among themselves and with the environment”. With the ideas of Coase in mind a company can be considered as a system because transactions take place within a company and that the company operates in an environment but can be distinguished from that environment.

Starting from 1937 Von Bertalanffly (1968) developed General System Theory. He notes that modern science is characterized by its ever-increasing specialization. Science is split into innumerable disciplines continually generating new sub disciplines. In consequence it is difficult to get word from one cocoon to the other. Von Bertalanffly states that it is necessary to study not only parts and processes in isolation. He argues that it seems legitimate to ask for a theory, not of systems of a more or less special kind, but of universal principles applying to systems in general. He calls this “General Systems Theory”.

Kenneth Boulding (1956) generated a hierarchy of systems to support the General Systems Theory of Ludwig von Bertalanffy (1968). Each level in the nine-level hierarchy includes the functionalities and attributes of all the lower levels. The levels Boulding distinguishes are:

1. The level of frameworks: This consists of basic classification systems, such as geography or anatomies. It is the level of the static structure.
2. The level of clockwork: This is the level of the simple dynamic system with predetermined, necessary motions.
3. The level of cybernetic systems: The level of self-controlling with feedback and information transmission. Like a thermostat.
4. The level of open system: This is the level of a self maintaining structure. A living cell is an example of this system.
5. The genetic level: This level it is typified by the plant.
6. The animal level: This level is characterized by increased mobility, teleological behavior and self-awareness.
7. The human level: The level of the individual human being considered as a system. There is self-consciousness en the ability to receive and interpret symbolic meanings as well as produce them.
8. The level of social organizations: At this level, there are value systems and meanings.
9. The level of transcendental systems: This is the level that deals with that which we can never fully know or understand.

A system can be classified in a higher level, as the complexity of the system increases. In line with the ideas of Williamson this also applies to companies. As the complexity of activities increases, the creation of a company is plausible. This theory assumes a relationship between the complexity of activities and the required complexity of the company in which they occur.

When we consider companies as systems we can, based on the complexity of the activities of companies and the resulting complexity of the companies themselves, classify the companies in certain levels of complexity.

### Alchian and Demsetz

Alchian and Demsetz (1972) argue that an organization can be considered as a form of team production . Teamproduction is the joint production of at least two individuals, where it is difficult to determine the marginal productivity of each of the team members by observing the total production of these individuals. Because the contribution of individual team members is difficult to distinguish shirking will be the result:

*“With several members of the team, each has an incentive to cheat against each other by engaging in more than the average amount of such leisure if the employer cannot tell at zero cost which employee is taking more than average. As a result the total productivity of the team is lowered.”*

Shirking is not in the interest of the organization because it reduces overall productivity. According to Alchian and Demsetz, these problems can be addressed within the context of a company by introducing a "monitor", who conduct and disciplines the other team members.

This monitor can also exhibit suboptimal behavior. The question that arises, therefore, is "who monitors the monitor?". Ultimately this is the residual claimant, the person to whom belongs the profits of the enterprise.

### Jensen and Meckling

Jensen and Meckling (1976) build on the work by Coase (1937) and Alchian and Demsetz (1972). They consider 'the firm as a nexus of a set of contracting relationships’. Jensen and Mackling developed the Agency Theory. The agency theory is based on the separation of ownership and management of the company. Between the management of the company and the owners of the company arises an 'agency relationship' which Jensen and Meckling define as follows:

*“A contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent*.“

The result of the delegation of decision making authority is that the agent is likely to manage in a way that is not in accordance with the wishes of the principals of the company. The agent will tend to use the resources of the company for his personal needs. Such behavior reduces the value of the company and the company’s principals will want to avoid this.  
However, only the contract is not enough. It should be checked whether the agent will enforce the contract. This involves costs, called agency costs:

* Bonding costs: costs that arise because the principal sends the decisions of the agent in a certain direction so that these decisions will not harm the principal. Bonding costs include the costs that come with when an agent gives permission to make his income depended of the company’s profit.
* Monitoring costs: costs that arise when the principal the tries to change the divergent interests of the agent through appropriate incentives. An example of this is to carry out a high degree of control in order to eliminate undesirable behavior.
* Residual loss: The loss of the principal resulting from the divergent interests of the agent. This is the 'uninsured' behavior of the risk-averse agent. This is the effort that is less than if the agent was the principal itself.

### Cressey

Agency problems, as discussed by Alchian and Demsetz and Jensen and Meckling, are also reflected in the work of Cressey (1953). Cressey interviewed 250 criminals who had accepted a position of trust in good faith, and who has violated the trust.

From this research Cressey stated that:

*“Trusted persons become trust violators when they conceive of themselves as having a financial problem which is non-shareable, are aware this problem can be secretly resolved by violation of the position of financial trust, and are able to apply to their own conduct in that situation verbalizations which enable them to adjust their conceptions of themselves as trusted persons with their conceptions of themselves as users of the entrusted funds or property.”*

This hypothesis become known as the fraud triangle. The fraud triangle consists of three dimensions:

* Pressure: This occurs when violators conceive of themselves as having a non-shareable financial problem.
* Opportunity: This occurs when the problem can be secretly resolved by violation of the position of financial trust.
* Rationalization: This occurs when the violator develops a justification for their fraudulent activities.

### Conclusion

Adam Smith explains why supply and demand are matched efficiently together within a market. Coase explains why companies still occur. When the costs of using the price mechanism exceed the coordination costs for performing activities yourself, activities will take place within the company. Williamson identifies three critical dimensions that influence the emergence of firms: uncertainty, frequency and specifity. In the view of Coase an entity can be seen as a system, as defined by Bertalanffy in his general system theory, because it is a set of elements standing in interrelation among themselves and with the environment. The transaction cost theory of Williamson fits in the hierarchy of systems as developed by Boulding, in response to the work of Bertalanffy. As uncertainty, frequency and specifity will increase the complexity of the system increases.

The work of Smith, Coase and Williamson shows that companies exist to achieve an objective. Implicitly it can be seen from their theories that this objective is profit maximization because it serves self-interest the most. A company can thus be characterized as a system that pursues an objective.

Alchian and Demsetz see an organization as a form of team production. This leads to the danger of shirking so that the overall production of the team will be reduced. Employees must be monitored in order to prevent this.

Jensen and Meckling identify a conflicting interest between the owners and management of a company. To do act the agent in the interest of the principal agency costs will be made.

Cressey stated that trusted persons become violators when three dimensions occur: pressure, opportunity and rationalization.

The work of Alchian and Demsetz and Jensen and Meckling show that conflicts of interest between the residual claimant (principal) and the employees of an organization (agent) could cause that the objective is not fully achieved by the company.

## What is control?

### Introduction

In the past chapter is mentioned that a company can be characterized as a system that pursues a goal. Conflicts of interest between the residual claimant (principal) and the employees of an organization (agent) could cause that the objective is not fully achieved by the company.

This chapter will answer the question: What is control? The term 'control' will be defined, and through a survey of different "control mechanisms" will be shown how control can be achieved. Also factors which influence the choice for a particular control mechanism will be discussed.

### Fayol

Already in 1916 Fayol distinguishes five functions of the management of a company, namely planning, organizing, command, coordination and control. He was one of the first who defined the concept of control. The definition of Fayol is as follows:

“*Control of an undertaking consists of seeing that everything is being carried out in accordance with the plan which has been adopted, the orders which have been given, and the principles which have been laid down. Its object is to point out mistakes in order that they may be rectified and prevented from recurring.”*

In this definition Fayol establishes a clear link between planning (goal setting) and control by a comparison between the plan and its implementation.

### McGregor

McGregor (1960) studied the way managers saw their subordinates. He came to the conclusion that there opposing views were prevalent:

* Theory X: Theory X represents a negative image of man. Theory X states that employees are lazy and do not want to work, that employees does not want responsibility and that employees should be forced to perform.

A manager with this vision has an authoritarian style of leadership. He works with reward and punishment and employees are not involved into decision-making. The danger is that people, faced with this managerial behavior, in turn, begin to show the associated behavior. The manager creates a self-fulfilling prophecy.  
Seen from theory X, employees need to be extrinsically motivated to show certain behavior.

* Theory Y: Theory Y is the opposite of theory X. Theory Y states that work is natural, that employees likes to be responsible, that money is not the only factor motivating employees and that employees are naturally inclined to think creatively in finding solutions for problems.

A manager with this vision involves people at work and is accompanying than leading.  
Seen from theory X, employees need to be intrinsically motivated to show certain behavior.

McGregor recognized that every human image needs their own leadership style.

### Anthony

Anthony (1965) provided the first discussion of management control as a separate topic of academic study. Years after the publication of Fayol, Anthony designed a framework for planning and control. He suggests that planning and control may be segmented into three categories:

* strategic planning
* management control
* task control

Strategic planning is about setting objectives for the organization as whole and formulating strategies to achieve those goals. Task control is about performing tasks on the operational level in an effective and efficient way. Management control focuses on the connection between the organization’s objectives and strategies and the operational performance of an organization. Management control is defined as:

*“the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization’s objectives.”*

In a later publication, Anthony (1988) adapted his definition of management control:

*"Management control is the process by which managers influence other members of the organization to implement the organization's strategies."*

In his first definition, the focus was mainly on hard targets and rules. In the later definition the focus is on influencing behavior.

### Hopwood

In his book Accounting and human behavior, Hopwood (1974) distinguishes three forms of control:

* Social controls: Group norms, staff culture and social interaction . Motivations, expectations and personal relations are important for the internal control of an organization. Hopwood is related to Theory Y of McGregor (1960).
* Administration control: Formal rules and procedures that regulate the behavior of employees.
* Self control: Staff exerting self-control by modifying their own behavior.

### Ouchi

In order to align opposing interests, Ouchi (1979) distinguishes three organizational control mechanisms within organizations. Two dimensions are necessary for the functioning of these mechanisms: Informational requirements and social requirements. The three mechanisms Ouchi recognizes are:

* Market mechanisms: The social requirement for this type of control is reciprocity. A norm of reciprocity assures that where one party in a market transaction attempt to cheat another, the cheater, if discovered, will be punished by all members of the social system, not only by the victim and his or her partners. The severity of the punishment will typically far exceed the crime, thus effectively deterring potential future opportunists. The information requirements for which are necessary to operate for the market mechanism are the prices that arose from the price mechanism.  
  This mechanism is described as ‘the invisible hand’ by Adam Smith.
* Bureaucratic mechanisms: The social requirements for this type of control are (1) reciprocity and (2) legitimate authority, which contains the idea that, in exchange for pay, an employee gives up autonomy in certain areas to his organizational superiors, thus permitting them to direct his work activities and to monitor his performance. The information requirements for bureaucratic mechanisms are contained in rules, e.g. a budget. A manager must compare actual performance to the rule in order to determine whether the actual performance was satisfactory or not.
* Clan mechanisms: The clan mechanisms have to deal with the informal social structure of an organization, which, in addition to market and bureaucratic mechanisms, also contributes to control. A clan also requires reciprocity and legitimate authority but also social agreement on a broad range of values and beliefs. In a Clan, the information requirements are contained in the rituals, stories, and ceremonies which convey the values and beliefs of the organization.

Ouchi (1979) recognizes two variables that determine the choice of a particular control system: the measurability of outputs and uncertainty about transformation processes.  
Depending on these variables a choice will be made ​​of one of the following control systems:

* Behavior control: Focused on the actions of employees.
* Output control: Focuses on the output of the actions of employees.
* Clan control: Not focused on the actions of employees or its output but on the values ​​and norms of the collective of employees.

If there is no uncertainty about transformation processes, Ouchi advocates behavior or output control for easily measurable outputs and behavior control for difficult measurable outputs.

If transformation processes are uncertain, Ouchi recommends output control for easily measurable outputs and clan control for outputs that are difficult to measure.

### Hofstede

Hofstede (1981) describes a control framework that is not based on controlling organizations but on controlling activities. From the classification of activities follows the choice of a particular management control typology.

The criteria Hofstede gives to classify activities are:

1. Are the objectives of the activity un-ambiguous or ambiguous?
2. Are its outputs measurable or non-measurable?
3. Are effects of management interventions in it known or unknown?
4. Is the activity repetitive or non-repetitive?

Depending on where activities stand with regard to these criteria, the applicable control corresponds to one of six different types:

1. Routine control: If objectives are unambiguous, outputs are measurable, effects of management interventions are known and the activity is repetitive routine control is applicable. This type of control can be prescribed in precise rules and regulations.
2. Expert control: If objectives are unambiguous, outputs are measurable, effects of management interventions are known but the activity is non-repetitive it makes sense to entrust control to an expert. That is someone for whom such activities are repetitive and who has been able to learn about them on previous occasions.
3. Trial-and-error control: If objectives are unambiguous, outputs are measurable and the activity is repetitive but effects of management interventions are unknown the organization can learn to control through its own failures.

These first three types can be represented by cybernetic models. Hofstede makes a comparison with a thermostat. The set of objectives can be seen as the set of the temperature. The measurement of the output can be viewed as the measure of the temperature. Feeding back unwanted variances to management is analogous to the negative feedback signal in the thermostat cycle. Finally, corrective intervention in the process is analogous to intervention in the flow of heat to the system.

1. Intuitive control: If objectives are unambiguous, outputs are measurable, but effects of management interventions are unknown and the activity is non-repetitive the organization has to rely on management control as an art rather than as a science. The organization has to find a person who can be trusted to intuitively find the proper form of intervention needed to achieve the desired results..
2. Judgmental control: If objectives are unambiguous but outputs are non-measurable and effects of management interventions are unknown control of the activity becomes a matter of subjective judgment. It depends on the power and influence structure of the organization whether there is one supreme judge (or coalition of judges) whose judgment is the basis for intervention.
3. Political control.: If objectives are unambiguous, control is always dependents on power structures, negotiation processes, the need for the distribution of scarce resources, particular interests and conflicting values.

These second three types can be represented by non*-*cyberneticmodels of control. Non-cybernetic models of control rely more on the values and rituals of the group in which decision-makers operate.

### Merchant

According to Merchant (1982) controls within an organization are needed because of the lack of goal congruence of the employees. Controls are needed to increase goal congruence or to prevent employees from acting in their own interest when goal incongruence exists. Merchant describes good control as:

*“Good control should mean that an informed person could be reasonably confident no major unpleasant surprises will occur.”*

Merchant gives a few characteristics of good control:

* Control is future-oriented: the goal is to have no unpleasant surprises in the future.
* Control is multidimensional: performance on all significant dimensions has to be considered.
* The assessment of whether good performance assurance has been achieved is difficult and subjective.
* Better control is not always economically desirable. Control tools should only be implemented if the expected benefits exceed the costs.

Good control can be achieved in two ways:

1. Control-problem Avoidance: Merchant gives four possibilities to avoid control-problems:
   * Automation: Computers and other means of automation can be set to perform appropriately and they will perform more consistently than do human beings.
   * Centralization: When no other persons are involved there will be no control problems.
   * Risk-sharing: Risks can be shared with another organization, like an insurance company.
   * Elimination: Businesses or operations can be eliminated entirely.
2. Implementing one or more controls tactics: Merchant gives three types of control tactics to accomplish control:
   * Control of specific actions: A type of control that attempts that individuals perform certain actions that are known to be desirable.
   * Control of results: A type of control that comes in the form of results accountability.
   * Control of personnel: A type of control that emphasizes a reliance of the personnel involved to do what is best for the organization.

Merchant gives the two factors most limiting control feasibility:

* Knowledge of desirable actions
* The ability to measure results on the important performance dimensions

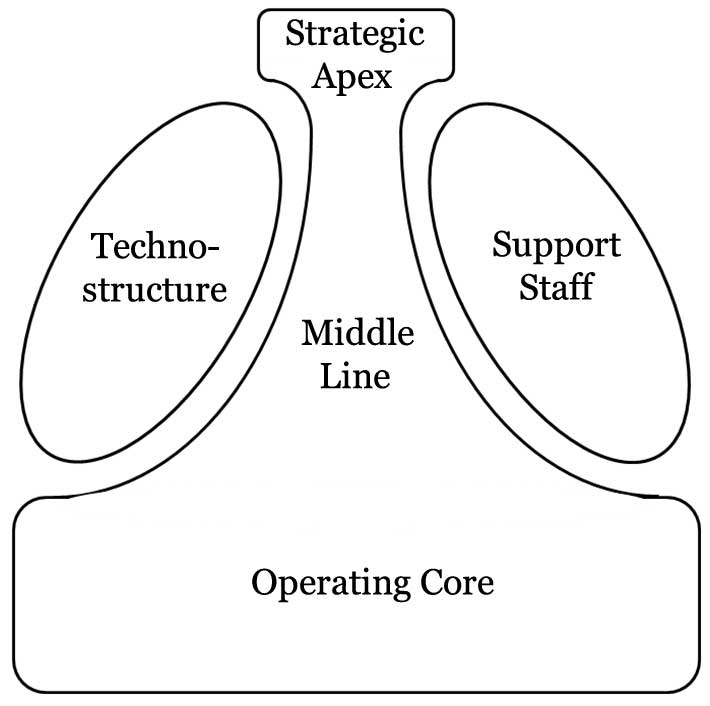
The table below shows how this factors influences the choice for a certain type of control:

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Ability to measure results on important performance dimensions* | | |
| *Knowledge of which specific actions are desirable* |  | High | Low |
| Excellent | 1. Specific action and/or results control | 1. Specific action control |
| Poor | 1. Results control | 1. Personnel control |

If it is possible to measure results and the there is enough knowledge of the desirable actions, a choice can be made for control of specific action or for control of results (box 1). If there is a poor knowledge of the desirable actions but the results are measurable, the most feasible type of control is results control (box 3). If results are not measurable but there is knowledge of the desirable actions, control of results is the best way to achieve good control (box 2). If it is hardly possible to measure results and the desirable actions are not known, personal control is the only possible control tactic (box 4).

### Mintzberg

According to Mintzberg (1983) organizations are formed of five main parts:

* Operating core: The people directly related to the production of services or products.
* Strategic apex: Serves the needs of those people who control the organization.
* Middle-line managers: The managers who connect the strategic apex with the operating core.
* Technostructure: The analysts who design, plan, change or train the operating core.
* Support staff: The specialists who provide support to the organization outside of the operating core's activities.

Mintzberg distinguishes five coordinating mechanisms that seem to explain the fundamental ways in which organizations coordinate their work:

* Direct supervision: One person gives direct orders to others
* Standardization of work processes: One person designs the general work procedures of others to ensure that these are all coordinated.
* Standardization of work outputs: One person specifies the general outputs of the work of another.
* Standardization of worker skills: A person is trained in a certain way so that he or she coordinates automatically with others.
* Mutual adjustment: Two or more people communicate informally among themselves to coordinate their work.

Besides the key parts of an organization and the prime coordination mechanism of an organization, the third basic dimension of an organization is the type of decentralization it employs. The three types of decentralization are the following:

* Vertical decentralization: The distribution of power down the chain of command, or shared authority between superordinates and subordinates in any organization.
* Horizontal decentralization: The extent to which non administrators (including staff) make decisions, or shared authority between line and staff.
* Selective decentralization: The extent to which decision making power is delegated to different units within the organization.

Different structures arise from the strategy the three basic dimensions mentioned before. Mintzberg suggests that the strategy an organization adopts and the extent to which it practices that strategy result in five configuration structures:

* Simple Structure: The key part of this structure is the strategic apex, which coordinates by direct supervision. This structure is highly centralized. This type of organization consists of the top manager and a few workers in the operative core. An example of an organization with a simple structure is a medium-sized retail store.
* Machine Bureaucracy: The key part of this structure is the techno-structure, which coordinates by standardization of work processes. This structure is vertically centralized and horizontally limited decentralized to the techno-structure. Many levels exist in the chain of command from top management to the bottom of the organization. An example of an organization with the structure of machine bureaucracy is an automobile manufacturer.
* Professional Bureaucracy: This structure relies on the standardization of skills in the operating core for coordination. There is an extensive horizontal and vertical decentralization. Top management is small, there are few middle managers, the technostructure is generally small but the support staff is large. An example of an organization with the structure of a professional bureaucracy is an university.
* Divisionalised Form: In this structure there is a limited vertical decentralization to the middle-line, which forms the key part of this structure. Coordination took place by standardization of outputs. Each division itself is relatively centralized, The techno structure is located at corporate headquarters and support staff is located within each division.
* Adhocracy: The key part of this organization is the support staff which relies on mutual adjustment as the key coordinating mechanism. The technostucture is small and the support staff is large. Adhocracies engage in non-routine tasks. An example of an adhocray-structured organization is a research and development firm.

|  |  |  |  |
| --- | --- | --- | --- |
| **Structural Configuration** | **Prime Coordinating Mechanism** | **Key Part of Organization** | **Type of Decentralization** |
| Simple structure | Direct supervision | Strategic apex | Vertical and horizontal centralization |
| Machine bureaucracy | Standardization of work processes | Technostructure | Limited horizontal decentralization |
| Professional bureaucracy | Standardization of skills | Operating core | Vertical and horizontal decentralization |
| Divisionalized form | Standardization of outputs | Middle line | Limited vertical decentralization |
| Adhocracy | Mutual adjustment | Support staff | Selective decentralization |

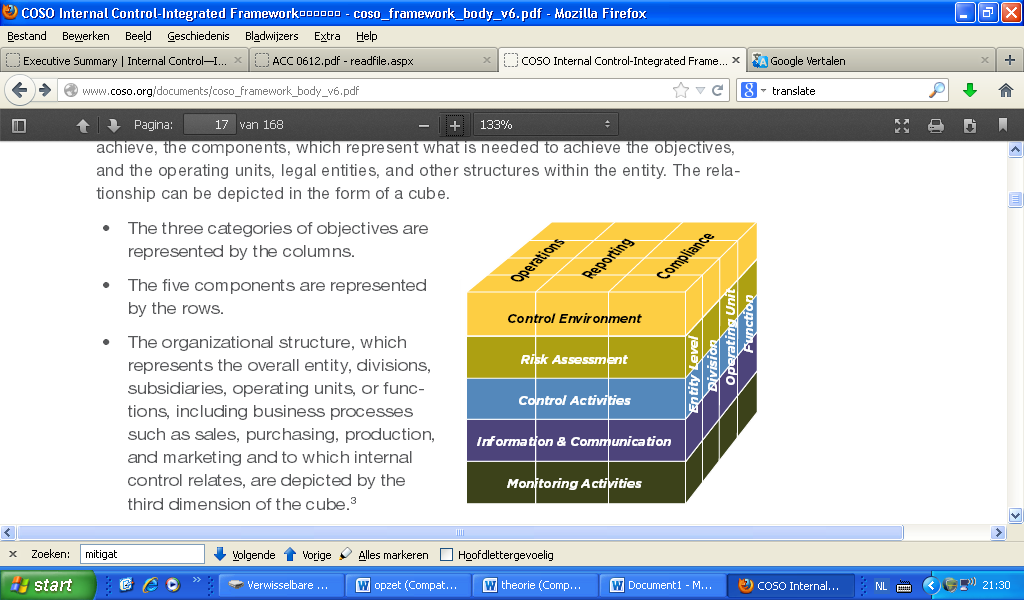
In 1987 Mintzberg developed his ‘five P’s of strategy’. He gives five different approaches to strategy:

* Strategy as a Plan: strategy as a plan with goals to achieve and ways to do that.
* Strategy as a Ploy: strategy as a move or maneuver.
* Strategy as a Pattern: strategy as a pattern in a series of decisions.
* Strategy as a Position: strategy as a market position.
* Perspective: strategy a way of thinking and acting.

### COSO

COSO (1992) defines internal control as follows:

*“Internal control is a process, effected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance.”*

**

COSO developed a framework for internal control that defines and describes the various elements of internal control. The model gives the direct relationship between objectives, which are what an entity strives to achieve, the components, which represent what is needed to achieve the objectives, and the operating structures within the entity. The relationship can be depicted in the form of a cube.

The framework provides three categories of objectives:

* Operations Objectives: These pertain to effectiveness and efficiency of the entity’s operations, including operational and financial performance goals, and safeguarding assets against loss.
* Reporting Objectives: These pertain to internal and external financial and non-financial reporting and may encompass reliability, timeliness, transparency, or other terms as set forth by regulators, recognized standard setters, or the entity’s policies.
* Compliance Objectives: These pertain to comply to laws and regulations to which the entity is subject.

COSO distinguishes five components of internal control:

* Control Environment: The control environment is the set of standards, processes, and structures that provide the basis for carrying out internal control across the organization. The control environment comprises the integrity and ethical values of the organization.
* Risk assessment: Risk assessment involves a dynamic and iterative process for identifying and assessing risks to the achievement of objectives. Risk assessment forms the basis for determining how risks will be managed.
* 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.
* Information and Communication: Information is necessary for the entity to carry out internal control responsibilities to support the achievement of its objectives. Communication is the continual, iterative process of providing, sharing, and obtaining necessary information.
* Monitoring Activities: Ongoing evaluations, separate evaluations, or some combination of the two are used to ascertain whether each of the five components of internal control, including controls to effect the principles within each component, is present and functioning.

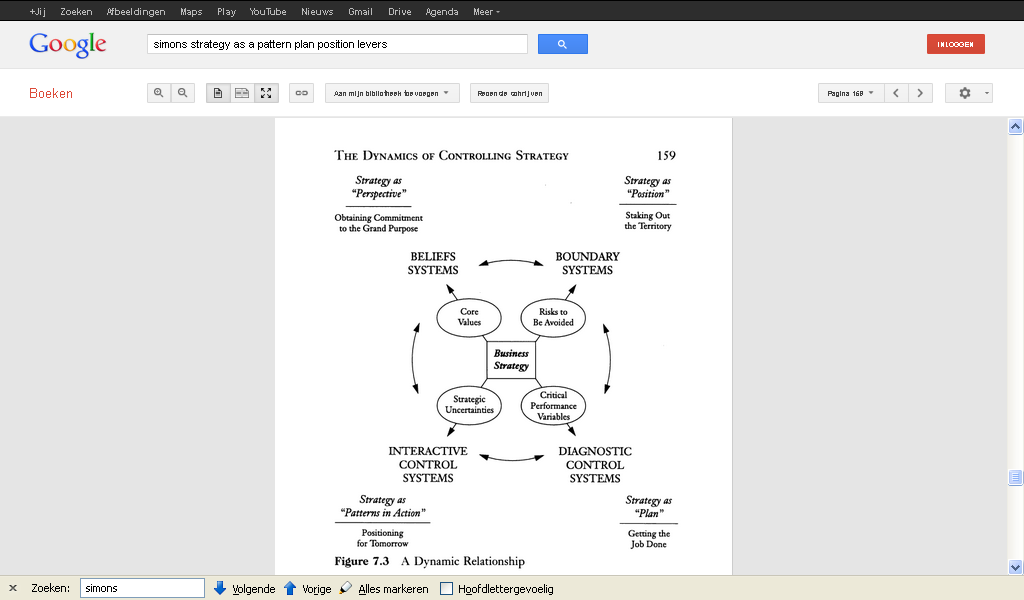
For each of the components of internal control the framework set outs a few principles, seventeen in total. An organization can achieve effective internal control by applying all principles.

The third element of an internal control system is the organizational structure, which represents the overall entity, divisions, subsidiaries, operating units, or functions, including business processes such as sales, purchasing, production, and marketing and to which internal control relates.

In 2013 COSO released an updated version of the framework. An important change is the translation of internal control concepts in seventeen principles and detailed characteristics. In the renewed framework there is more attention to IT. In the discussion of all five components of internal control system relevant IT issues come forward.

### Simons

Simons (1995) argued that most managers tend to define control narrowly – as measuring progress against plans to guarantee the predictable achievement of goals. He calls this type of control system a diagnostic control system. Simons introduced four key constructs that have to be analyzed and understood in order to implement strategy successfully: core values, risks to be avoided, critical performance variables and strategic uncertainties. Each construct is controlled by a different system, or lever, the use of which has different implications. Besides the diagnostic control systems, Simons mentioned three other levers of control which are equally important. The four levers of control are:

* Beliefs systems: Relate to the fundamental values of the organization. Examples in this category include mission statements and vision statements. The purpose of this system is to empower and expand search activity. This system communicates the vision of the organization.
* Boundary systems: Describe constraints in terms of employee behavior such as forbidden actions. The purpose of this system is to provide limits of freedom. This system communicates the strategic domain of the organization.
* Diagnostic control systems: Theoretically provide information indicating when a system is in control or out of control. The purpose of this system is to coordinate and monitor the implementation of intended strategies. This system communicates the plans and goals of the organization.
* Interactive control systems: Focus on the organizations communicating and implementing strategies and promote learning and growth. Purpose of this system is to stimulate and guide emergent strategies. This system communicates the strategic uncertainties of the organization.

Simons argued that each of the different approaches of strategy according Mintzberg (1987) has to be controlled by a certain control system, as showed in the figure above.

Control of the strategy is achieved by integrating these four levers of control. Two of the control systems, belief systems and interactive control systems, are positive control systems because they resemble positive and inspirational forces. By contrast, the negative control systems, boundary and diagnostic systems, are used to balance these positive systems, by constraints and compliance with rules.

### Spekle

Based on the transaction cost theory, developed by Williamson (1979), Spekle (2001) gives four control archetypes, based on the characteristics of the control activities. The archetypes are tailored to the problems arising in certain activities.

In the table below is schematically summarized what the relationship is between the control archetypes and the nature of the activities of the organization.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Programmability of ex-ante*  *Contributions* | High | **Boundary Control** | | High | *Impact of ex-post information*  *asymmetry* |
| **Exploratory Control** | | Low |
| Low | **Arm’s length Control** | **Machine Control** |  |  |
|  |  | Moderate | High |  |  |
|  |  | *Assets specificity* | |  |  |

The characteristics of the activities are from the transaction cost theory. These are:

1. The programmability of ex-ante contributions (degree of uncertainty): this refers to the extent to which the desired contributions are amenable to ex ante programming.
2. The degree of assets specificity: this refers to the degree of uniqueness of resources such as machinery, computer systems, knowledge or human capital.
3. The ex post information asymmetry relates to the problem that it is difficult to establish the required contribution in advance and to monitor this accurately during activities. This variable only plays a role if the activity scores high on the programmability of ex-ante contributions and moderate to high on assets specificity.

Speklé developed five archetypes for control, based on the characteristics of activities. Each archetype provides an effective solution for the control problems associated with the specific activities:

1. Arm's length control: Arm's length control is found in activities that are characterized by low uncertainty and limited specificity. This archetype of control heavily is based on market-related performance standards. The principal remains at a distance as long as the results correspond to those standards.
2. Machine Control: Machine control has two variants:
   1. standardization and monitoring of operations: the behavioral variant.
   2. standardization and monitoring of outcomes: the results-oriented variant. Unlike arm's length control, the standards of machine control come from the organization itself. This archetype is connected to activities that have a low uncertainty pairs to a high specificity.
3. Exploratory control: Exploratory control works with norms and standards that are not already available in advance, but generated during the execution of the activity. Exploratory control offers a solution for activities to be characterized as uncertain, but where a structure can be designed that will make the insights that arise are being shared, so convergence in attitudes and expectations can be realized during the execution of the activity.
4. Boundary control: Boundary control is eligible when the sharing of information, required for exploratory control, cannot be achieved. Management within this type is based on boundaries that try to avoid unwanted behaviors.

### Conclusion

The concept of 'Control' is defined by Fayol, Anthony and COSO as a process to ensure that organizational objectives are achieved.

McGregor developed Theory X, a positive image of man, and theory Y, a negative image of man. Theory X assumes an extrinsic motivation to exhibit certain behavior. Theory Y assumes an intrinsic motivation to engage in certain behavior. Based on this Hopwood distinguishes three types of control: social controls, administration control and self control. Also Ouchi distinguishes three different mechanisms to control: Market mechanisms, bureaucratic mechanisms and clan mechanisms. Simons distinguishes four 'levers' to control an organization: Belief systems, boundary systems, diagnostic control systems and interactive control systems.

Ouchi, Hofstede, Merchant, Mintzberg and Spekle link the characterization of the object to control, based on certain characteristics, to the choice of a type of control system. This is summarized in the table below:

|  |  |  |
| --- | --- | --- |
| **Author** | **Typing based on** | **Control systems** |
| Ouchi (1979) | * Measurability of outputs * Uncertainty about transformation processes | * Behavior control * Output control * Clan control |
| Hofstede (1981) | * Ambiguoity of objectives * Measurability of outputs * Knownability of effects of management intervention * Repitivity of activities | * Routine control * Expert Control * Trial and Error Control * Intuitive Control * Judgmental control * Political control |
| Merchant (1982) | * Knowledge of desirable actions * Ability to measure results | * Control of specific actions * Control of results * Control of personnel |
| Mintzberg (1983) | * Key part of organization (Strategic apex, techno structure, operating core, middle line, support staff) * Type of decentralization | * Direct supervision (Simple structure) * Standardization of work processes (Machine bureaucracy) * Standardization of skills (Professional bureaucracy) * Standardization of outputs (Divisionalized form) * Mutual adjustment (Adhocracy) |
| Spekle (1992) | * Programmability of ex-ante contributions * Assets specificity * Ex post information asymmetry | * Machine control * Arm’s length control * Exploratory control * Boundary control |

All authors characterize the object control based on characteristics that say something about the complexity of the object to control. The approach of classifying the object to control based on complexity is consistent with the view of an organization as a system with a certain degree of complexity. The more complex the organization to control the higher it is situated in the hierarchy of systems, as stated by Boulding.

General system theory also shows that an organization is not only a system in itself but that it also consists of different systems. These systems consist in their turn, also from different systems, and so on. This is evident from the subdivision into the different basic parts of an organization, as Mintzberg does. This suggests that an organization as a whole can be seen as a system but that the various key parts of an organization are also systems in itself. Also the COSO model clearly illustrates this: The operating structure of an organization can be seen on entity level, which in turn consists of several divisions, which in turn consists of several operational units, which in turn consists of several functions. Each division, operational unit and function can be seen as a separate system. Each of these systems and subsystems can be seen separately as a system to control. Each of these systems can be typified based on the characteristics which are given by the literature.

In the literature, the organizations or activities (systems to control) can be classified according to their complexity. The elements that are used to classify the complexity of the systems to control can be broadly classified into two categories:

* Ex-ante degree of uncertainty about the activities to control. That is, to what extent is to determine in advance what the result of the activities to be carried out should be?   
  This category is derived from the following elements:
  + Ouchi: uncertainty about transformation processes
  + Hofstede: ambiguity or objectives
  + Merchant: knowledge or desirable actions
  + Spekle: programmability of ex-ante contributions
  + Mitzberg: horizontal centralization

Which classifies a system as complex if the ex-ante degree of uncertainty about the activities to control is high and which classifies a system as simple if the ex-ante degree of uncertainty about the activities to control is low.

* Ex-post degree of uncertainty about the activities to control. That is, to what extent is to determine afterwards what the result of the activities carried out is?  
  This category is derived from the following elements:
  + Ouchi: Measurability of outputs
  + Hofstede: Measurability of outputs
  + Merchant: Ability to measure results
  + Spekle: ex post information asymmetry
  + Mitzberg: Vertical decentralization

Which classifies a system as complex if the ex-post degree of uncertainty about the activities to control is high and which classifies a system as simple if the ex-post degree of uncertainty about the activities to control is low.

*Classification of systems to control:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| High  -> |  |  |  | **COMPLEX** |
| Ex-ante degree of uncertainty |  |  |  |  |
|  |  |  |  |
| Low  <- | **SIMPLE** |  |  |  |
|  | Low  <- | Ex-post degree of uncertainty | | High  -> |

The discussed systems of control can be classified based on the concept of man (theory X or theory Y) which they primarily seek connection. A division that matches the division in cybernetic and non-cybernetic control systems, as made by Hofstede. The systems of control can be placed in the spectrum between theory X and theory Y, based on the extent to which they reflect these theories:

*Classification of systems of control:*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Hopwood** | **Ouchi** | **Hofstede** | **Merchant** |  |
| **Theory Y** | **->** | Administration control | Behavior control  Output control | Routine control  Expert Control  Trial and Error Control | Control of specific actions  Control of results |  |
| **Theory X** | **->** | Social control  Self control | Clan control | Intuitive Control  Judgmental control  Political control | Control of personnel | … |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mintzberg** | **Simons** | **Spekle** |
|  | Direct supervision  Standardization of work processes  Standardization of outputs | Belief systems  Interactive control systems | Machine control  Arm’s length control |
| … | Standardization of skills  Mutual adjustment | Diagnostic control systems  Boundary systems | Exploratory control  Boundary control |

The literature shows that as the system to control is more complex to manage the intrinsic motivation of employees is more appealed in the system of control, following theory X, by focusing on values. As the system to control is less complex the extrinsic motivation of employees is more appealed in the system of control, following theory Y, by focusing on rules.

Bringing the system to control and the system of control together in this way will lead to the following schematic representation:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| High  -> |  |  |  | **COMPLEX**  **(Theory X)** |
| Ex-ante degree of uncertainty |  |  |  |  |
|  |  |  |  |
| Low  <- | **(Theory Y)**  **SIMPLE** |  |  |  |
|  | Low  <- | Ex-post degree of uncertainty | | High  -> |

## What are hard and soft controls?

In the previous chapter is defined what control is and how control can be reached by using control mechanisms. The literature shows that the complexity of the system to control affects the choice for a system of control. The elements to define the complexity of a system can be broadly classified in two categories: The ex-ante and the ex-post uncertainty. The more complex a system to control, the more the intrinsic motivation of employees is appealed in the system of control. The more simple a system to control, the more the extrinsic motivation of employees is appealed.

In this chapter a distinction will be made between hard- and soft controls, consistent with theory X and theory Y of McGregor. Hard- and soft controls will be defined and an explanation is given about how hard- and soft controls can be measured.

### Roth

As far as can be ascertained is Roth (1997) was the first who made ​​a distinction between hard and soft controls. Roth gives the following meaning to the concept of soft controls:

*“People's integrity and ethical values: organizational commitment to competence; management's philosophy, and operating style; management's understanding and management of risk; and communication.”*

The elements of soft controls that are mentioned by Roth show that soft controls are the main controls from which a system of control that appeals the intrinsic motivation of employees, following theory X of McGregor, exists.

In an interview in 2009, Roth compares hard controls to a map that tells what should be there. From this view hard controls are to consider as visible, clear and measurable rules, guidelines and procedures. This interpretation shows that hard controls are the main controls in a system of control that appeals the extrinsic motivation of employees, following theory Y of McGregor.

### De Heus en Stremmelaar

De Heus and Stremmelaar (2000) wrote a book titled: ‘Auditing of soft controls’. They define soft controls as:

*“Controls which come close to the person itself and therefore may affect the values, beliefs, and personality of employees.”*

This definition is in line with the definition from Roth. Also in the definition of De Heus and Stremmelaar the key element of soft controls are the values ​​of the employees that need to be controlled.

De Heus and Stremmelaar describe hard controls as controls that are focused on the influence of the organization, the behavior and the skills of people. Because hard controls are concrete and lead to demonstrable results, they are more objective and reliable to test.

De Heus and Stremmelaar indicate how soft controls can be measured. In the method they developed the way of measuring soft controls is tailored to the system to control. To measure soft controls first should be inventoried which controls exist.

Then the critical organization variables that affect these controls should be named. Examples of critical organizational variables are integrity, motivation, skills and inspiration. Critical organizational variables are somewhat similar to the well known critical success factors for a company. The critical success factors have an external focus and determine how a company relates to his competitors. Critical organizational variables have an internal focus and say something about the internal control of a company.

The next step is the identification and measurement of indicators. Indicators are needed to make statements about the effectiveness of controls or the extent to which a critical organization variable exists. An example of an indicator is "absenteeism". This indicator can provide information about the critical success factor 'motivation'.

Finally, the relevant conditions that are necessary for the identified critical organizational variables should be named. These conditions are the basic requirements to which the organization must meet to let the critical organization variable come into its own. De Heus and Stremmelaar give examples of basic conditions for the critical organizational variable 'mutual trust': that employees know each other, communicate with each other and understand each other's activities.

### Kaptein

Kaptein (1998) analyzed 150 case studies of unethical behavior on the factors within the organization that made such behavior possible. Kaptein identified seven factors that can be considered as soft controls. The model is an extension of the fraud triangle, developed by Cressey (1953). Kaptein stated that an organization's integrity can be determined on the basis of the extent to which the following moral virtues or qualities are anchored in the organization's guidance of its employees:

1. Clarity: Providing clear expectations for employees with regard to making a responsible choice;
2. Consistency: Providing consistent and unambiguous expectations by, for example, ensuring managers set a good example;
3. Achievability: Formulating achievable expectations for employees;
4. Supportability: Creating support for attempts to fulfill the expectations;
5. Visibility: Providing insight into whether or not employees and the organization as a whole are living up to expectations;
6. Discussability: Making conflicting expectations discussible, both among employees themselves and between themselves and their managers, and encouraging employees and managers to tackle each other about failures to live up to expectations or any breaches; and
7. Sanctionability: Rewarding employees who live up to expectations or make an effort to do so, and disciplining employees who willfully fail to live up to expectations.

It can be assumed that those seven types of soft controls affect each other. For example, ‘consistency’, in the sense of setting a good example, might influence the presence of the factor ‘discussabiliy’.

### COSO

The distinction between hard and soft controls is reflected in the COSO-framework (1992). Soft Controls are part of the component 'control environment’. According to COSO on this component the following principles apply:

* The organization demonstrates a commitment to integrity and ethical values.
* The board of directors demonstrates independence from management and exercises oversight of the development and performance of internal control.
* Management establishes, with board oversight, structures, reporting lines, and appropriate authorities and responsibilities in the pursuit of objectives.
* The organization demonstrates a commitment to attract, develop, and retain competent individuals in alignment with objectives.
* The organization holds individuals accountable for their internal control responsibilities in the pursuit of objectives.

This principles turn out the importance of concepts as integrity, ethical values, independence and commitment , which can be seen as part of the soft controls.

Also hard controls are part of the COSO framework. Hard Controls are mainly reflected in the component 'control activities'. The following three principles apply to this component:

* The organization selects and develops control activities that contribute to the mitigation of risks to the achievement of objectives to acceptable levels.
* The organization selects and develops general control activities over technology to support the achievement of objectives.
* The organization deploys control activities through policies that establish what is expected and procedures that put policies into action.

Whit regard to the first principle, COSO gives a few examples of control activities:

* Verifications: Comparing two or more items with each other or comparing an item with a policy and performing follow-up actions when the items do not match.
* Reconciliations: Comparing two or more data elements and if differences are identified, action is taken to bring the data into agreement.
* Authorization and approvals: Affirming that a transaction is valid.
* Physical controls: Assets are secured physically and periodically counted and compared with the recorded amounts.
* Controls over standing data: Control activities populate, update and maintain the accuracy, completeness and validity of standing data, such as a price master file.
* Supervisory controls: Controls that assess whether controls are being performed.

These control activities can be considered as hard controls. COSO also highlights the importance of segregation of duties. Segregation of duties generally consists of dividing the responsibility for recording, authorization and approval of transactions and handling the related asset. COSO gives the following example whit regard to segregation of duties:

*“A manager authorizing credit sales is not responsible for maintaining accounts receivable records or handling cash receipts. If one person is able to perform all these activities he or she could, for example, create a fictitious sale and enable it to go undetected.”*

The second principle focusses on the control activities over technology. For this principle a distinction is made between use of technology in business processes and technology general controls. The first category is automated controls in business processes. For example an automated matching check. The technology general controls are the controls that ensure a proper functioning of the technology in business processes. For example a control that ensures that the right data-files are being used.

The third principle ensures that policies with regard to control activities are determined and that these policies are translated into action by procedures.

Two important principles regarding hard controls are included in the COSO framework under the component information and communication:

* The organization obtains or generates and uses relevant, quality information to support the functioning of other components of internal control.
* The organization internally communicates information, including objectives and responsibilities for internal control, necessary to support the functioning of other components of internal control.

These two principles show that the registration and communication of information related to the functioning of the components of internal control is a condition for the proper functioning of a system of control. Therefore, primary registrations are an important part of a system of hard controls. Based on primary registrations the performance of a system to control can be measured. For example, the registration of the amount of goods sold by a salesman.

### Vink en Kaptein

The model of Kaptein has been tested in practice by Vink and Kaptein (2008) in a research on the causes of legality errors of governmental organizations. In their research they also focus on the relationship between hard and soft controls. Vink and Kaptein measure soft controls by using the classification of Kaptein (1998), namely clarity, consistency, achievability, supportability, visibility, discussability and sanctionability. For measuring hard controls they use a classification based on the COSO-framework (COSO, 1992) but tailored to the Dutch government, namely internal control, risk management, primary registrations, description of procedures and segregation of duties . Both hard- and the soft controls are measured through interviews and questionnaires.

For thirty legality errors found in the 2006 annual reports of the government, the involved auditors are interviewed. None of the errors are caused by the failure of purely hard controls, while 17% of the errors are caused by the absence of soft controls. In 80% of the errors, however, the cause of the error lies in the failure of both soft and hard controls. Soft controls are found to be especially important in countering undue pressure of politics and official leadership.

A further statistical analysis shows that the correlation between all hard controls are significant (correlations vary between 0.42 and 0.65, p <.05). This means that failing hard controls occur regularly simultaneous. The soft controls 'consistency' and 'sanctionability' are significantly correlated with the hard control 'segregation of duties' (correlations of 0.40 and 0.39, p <.05). This means that the proper functioning of segregation of duties is associated with sufficient consistency and sanctionability. The soft controls 'sanctionability', 'visibility' and 'consistency' are mutually significantly correlated (correlations between 0.38 and 0.48, p <.05). These soft controls are considered by the involved auditors in a similar degree of importance for the different types of errors.

The analysis shows that the soft controls 'clarity', 'visibility', 'achievability' and ‘sanctionability' are considered in particular as an explanation for the regularity errors found.

### Katz-Navon et. al.

It's not that the more hard controls there are, the better the organization can achieve its objectives. Empirical research has shown that from a certain point more rules lead to errors. Katz-Navon et. al. (2005) researched the relationship in hospitals between the perceived detailing of safety procedures, which can be seen as hard-controls, and the number of treatment errors.

His study explored four dimensions of safety climate and the interactions among them as predictors of treatment errors. A total of 632 participants in 46 hospital units assessed their units' safety climate. Results demonstrated a curvilinear relationship between the levels of the perceived detailing of safety procedures and the number of treatment errors.

An abundance of hard controls can go beyond the comprehension of managers and employees. This may lead to unworkable situations and so undermine the responsibility of managers and employees.

### Conclusion

A distinction between hard controls and soft controls is made by various authors, including Roth (1997) en De Heus en Stremmelaar (2000). They give definitions of both hard controls and soft controls.

The core of several definitions of soft controls is that soft controls are controls whose impact on characteristics as integrity, ethical values, commitment, beliefs and personality affect the person itself. This shows that soft controls are the main controls from which a system of control, that appeals the intrinsic motivation of employees, following theory X of McGregor, exists.

Therefore, the concept of soft controls can be defined as follows:

*Controls that affect the morality persons, making them become intrinsically motivated to exhibit certain behavior.*

The various definitions of hard controls show that hard controls are clear and measurable standards and procedures that affect the actions of persons. This shows that hard controls are the main controls from which a system of control, that appeals the extrinsic motivation of employees, following theory X of McGregor, exists.

Therefore, the concept of hard controls can be defined as follows:

*Controls existing of clear and measurable standards and procedures, which affect the actions of persons, making them become extrinsically motivated to exhibit certain behavior.*

Relating hard and soft controls to the fraud triangle Cressey (1953), which exists of the dimensions pressure, opportunity and rationalization, shows that soft controls because of their intrinsic function mainly have an effect on reducing the rationalization of fraudulent acts. From their extrinsic function, hard controls mainly reduce the possibility of fraudulent acts.

Research to soft controls is done by Kaptein and Vink (2010). They investigated the causes of legality errors of governmental organizations None of the errors are caused by the failure of purely hard controls, while 17% of the errors are caused by the absence of soft controls. In 80% of the errors, however, the cause of the error lies in the failure of both soft and hard controls. Soft controls are found to be especially important in countering undue pressure of politics and official leadership.

Research to hard controls is done by Katz-Navon et. al. (2005). His results demonstrated a curvilinear relationship between the level of hard controls and the number of errors.

Kaptein (1998) identifies seven types of soft controls: clarity, consistency, achievability, supportability, visibility, discussability and sanctionability. It can be assumed that these types of soft controls affect each other. Kaptein and Vink (2010) use this classification to measure soft controls in their research to the role of hard- and soft controls by the Dutch government. De Heus en Stremmelaar (2000) mention that the way of measuring soft controls is tailored to the system to control. In their method of measuring soft controls, the critical organization variables that relate to this controls, the indicators that indicate this critical organization variables and the conditions that are necessary for this critical organization variables has to be identified.

Hard controls can be measured by identifying which control activities are in place. COSO (1992) gives a few examples of control activities: verifications, reconciliations, authorization and approvals, physical controls, controls over standing data, supervisory controls and segregation of duties. Based on the control activities of COSO, Kaptein and Vink (2010) measure hard controls in their research to the role of hard- and soft controls by the Dutch government.

The elements of a proper system of hard controls consist of the following six elements. Except primary registrations, all elements are based on component ‘control activities’ of the COSO-framework.

* Segregation of duties: As described in the COSO-model, segregation of duties is a necessary condition for a proper system of hard controls.
* Primary registrations: Also primary registrations can be seen as a condition for a proper system of hard controls. This element is divided from the component ‘information and communication’.
* Description of procedures: Control activities needs to be deployed through policies that establish what is expected and this policies need to be put into action by implementing procedures.
* Authorization and approvals: Transactions need to be affirmed as valid by authorized persons.
* Verifications and reconciliations: The actual performance needs to be verified by comparing it with the standards or with other data elements.
* Safeguarding of data and assets: Physical assets, such as inventory, and data, such as price files, need to be safeguarded for misappropriation or unauthorized changes.

The various types of hard controls can be largely seen as necessary conditions for other types of hard controls. As previously described in the example relating to segregation of duties. Another example is the same consistency between primary registrations and verifications and reconciliations. In order to compare the actual performance with standards, the actual performance has to be registrated properly.

The literature in the previous chapter shows that if the system to control is more complex to manage, caused by the ex-ante and ex-post degree of uncertainty of the system to control, the intrinsic motivation of employees is more appealed in the system of control, following theory X, by focusing on values. Such a system of control mainly exists of soft controls. If the system to control is less complex the extrinsic motivation of employees is more appealed in the system of control, following theory Y, by focusing on rules. Such a system of control mainly exists of hard controls. This will lead to the following schematic representation:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| High  -> |  |  |  | **COMPLEX**  **(soft controls)** |
| Ex-ante degree of uncertainty |  |  |  |  |
|  |  |  |  |
| Low  <- | **(hard controls)**  **SIMPLE** |  |  |  |
|  | Low  <- | Ex-post degree of uncertainty | | High  -> |

# Research

## Hypothesis

### Introduction

In the literature review is explained what an entity is and how agency problems arise within entities. An entity can be seen as a system that pursues an objective. Agency problems within entities could cause that the objective is not fully achieved by the entity. Control is defined as the process to ensure that the entity’s objectives are achieved. To achieve the objectives, entities uses systems of control. This system of control consists of soft controls, which can be defined as controls that affect the morality persons, making them become intrinsically motivated to exhibit certain behavior, and hard controls, which can be defined as controls existing of clear and measurable standards and procedures, which affect the actions of persons, making them become extrinsically motivated to exhibit certain behavior.

Many descriptive researches have been done on the use of hard- and soft controls in systems of control. (i.e. Ouchi (1979), Hofstede (1981), Merchant (1982), Mintzberg (1983) and Spekle (2001)) Although the terms 'hard controls' and 'soft controls' are not used in these studies, the descriptions of the types of controls that are mentioned in these studies show that this distinction can be made. In these descriptive studies it is assumed that the choice of hard controls or soft controls depends on the complexity of the system to control, caused by the ex-ante and ex-post degree of uncertainty of the system to control. If the degrees of ex-ante and ex-post uncertainty are high, the system to control classifies as complex. If the degrees of ex-ante and ex-post uncertainty are low, the system to control classifies as simple. The more complex a system to control, the more soft controls will be used. The more simple a system to control, the more hard controls will be used.

Exploratory research to the use of hard- and soft controls has been done by Kaptein (1998) and Kaptein and Vink (2008). From his exploratory study, Kaptein identifies seven types of soft controls. Kaptein and Vink explored the use of hard and soft controls by the Dutch government and the relationship between hard and soft controls.

Although many descriptive research and some exploratory research has been done on the use of hard and soft controls within entities, virtually no explanatory research has been done on this field. In order to answer the research question, this research consists of an explanatory research. Based on the literature discussed in the previous chapter hypotheses will be formulated and tested by analyzing obtained from small and medium sized entities about their use of hard controls and soft controls. Hypotheses will be formulated with regard to:

* + The coherence between the complexity of an entity, based on the ex-ante and ex-post degree of uncertainty, and the relationship between hard- and soft controls.
  + The coherence between the size of an entity, based on the amounts of revenue, employees and total assets, and the density of controls.
  + The coherence between hard controls and soft controls and the coherence between different types of hard controls and the different types of soft controls.
  + The coherence between different types of controls:
    - The coherence within the different types of soft controls.
    - The coherence within the different types of hard controls.

### Complexity and the use of hard- and soft controls

As mentioned in the introduction, from the descriptive literature we assume that the more complex a system to control, in terms of ex-ante and ex-post uncertainty, the more soft controls will be used. The more simple a system to control, the more hard controls will be used.

Therefore, a positive correlation is expected between the presence of soft controls and the complexity of a system to control and a negative correlation is expected between the presence of hard controls and the complexity of a system to control. In formulating hypotheses, the concept of complexity is considered in terms of ex-ante and ex-post uncertainty.

The following hypotheses have been formulated:

* 1. H0: The ex-ante uncertainty of the system to control and the presence of hard controls within SME’s are not negatively correlated.

H1: The ex-ante uncertainty of the system to control and the presence of hard controls within SME’s are negatively correlated.

* 1. H0: The ex-post uncertainty of the system to control and the presence of hard controls within SME’s are not negatively correlated.

H1: The ex-post uncertainty of the system to control and the presence of hard controls within SME’s are negatively correlated.

* 1. H0: The ex-ante uncertainty of the system to control and the presence of soft controls within SME’s are not positively correlated.

H1: The ex-ante uncertainty of the system to control and the presence of soft controls within SME’s are positively correlated.

* 1. H0: The ex-post uncertainty of the system to control and the presence of soft controls within SME’s are not positively correlated.

H1: The ex-post uncertainty of the system to control and the presence of soft controls within SME’s are positively correlated.

### Entity size and the use of hard and soft controls

Although the literature does not assume a correlation between the use of hard or soft controls and entity size, it is plausible to assume that there is a correlation between the amount of controls and the size of an entity. It is expected that the bigger an entity is, the more controls will be needed to control the entity.

Therefore a positive correlation is expected between the size of an entity and the presence of hard controls and soft controls. In formulating hypotheses, the size of an entity is considered in terms of the amount of revenue, the amount of employees and the amount of total assets.

The following hypotheses have been formulated:

* 1. H0: The amount of revenue and the presence of hard controls within SME’s are not positively correlated.  
     H1: The amount of revenue and the presence of hard controls within SME’s are positively correlated.
  2. H0: The amount of employees and the presence of hard controls within SME’s are not positively correlated.  
     H1: The amount of employees and the presence of hard controls within SME’s are positively correlated.
  3. H0: The amount of total assets and the presence of hard controls within SME’s are not positively correlated.  
     H1: The amount of total assets and the presence of hard controls within SME’s are positively correlated.
  4. H0: The amount of revenue and the presence of soft controls within SME’s are not positively correlated.  
     H1: The amount of revenue and the presence of soft controls within SME’s are positively correlated.
  5. H0: The amount of employees and the presence of soft controls within SME’s are not positively correlated.  
     H1: The amount of employees and the presence of soft controls within SME’s are positively correlated.
  6. H0: The amount of total assets and the presence of soft controls within SME’s are not positively correlated.  
     H1: The amount of total assets and the presence of soft controls within SME’s are positively correlated.

### Hard and soft controls

From the literature, in hypotheses 1 a positive correlation is assumed between the complexity of a system to control and the presence of soft controls and a negative correlation is assumed between the complexity of a system to control and the use of hard control. An extension of this hypothesis is the assumption that hard controls and soft controls substitutes. In other words, the more hard controls will be used, the less soft controls will be used and vice versa. Therefore a negative correlation is expected between the presence of hard controls and the presence of soft controls.

The following hypotheses have been formulated:

1. H0: The presence of hard controls and the presence of soft controls within SME’s are not negatively correlated.

H1: The presence of hard controls and the presence of soft controls within SME’s are negatively correlated.

### Hard controls

From the literature, based on the framework of COSO (1992), different types of hard controls can be distinguished. As mentioned in section 2.4.7. these different types can be largely considered as conditions for the other types of hard controls. Therefore is assumed that the presence of the different types of hard controls is positively correlated with the other types of hard controls. In order to test this assumption the following hypothesis is formulated:

* 1. H0: The presence of the different types of hard controls is not positively correlated.  
     H1: The presence of the different types of hard controls is positively correlated.

To make statements about how the different types of hard controls relate to each other, it is necessary not only to examine the correlation between the different types of hard controls but also the extent to which these types of hard controls are present. Therefore, the following hypothesis is formulated:

* 1. H0: The presence of the different types of hard controls does not differ.  
     H1: The presence of the different types of hard controls differs.

### Soft controls

From the literature, based on the work of Kaptein (1998), also different types of soft controls can be distinguished. In chapter 2.3 is assumed that these types of soft controls affect each other. In order to test this assumption the following hypothesis is formulated:

* 1. H0: The presence of the different types of soft controls is not positively correlated.  
     H1: The presence of the different types of soft controls is positively correlated.

To make statements about how the different types of soft controls relate to each other, it is necessary not only to examine the correlation between the different types of soft controls but also the extent to which these types of soft controls are present. Therefore, the following hypothesis is formulated:

* 1. H0: The presence of the different types of soft controls does not differ.  
     H1: The presence of the different types of soft controls differs.

## Variables

### Introduction

In the previous chapter a few hypotheses are formulated. In order to test these hypotheses in this chapter the relevant variables of these hypotheses are defined. Also the way of measuring these variables is explained.

### Complexity and the use of hard- and soft controls

The first relevant variables for hypotheses 1.1, 1.2, 1.3 and 1.4 are related to the uncertainty of the system to control. This uncertainty consists of two variables:

* Ex-ante uncertainty: This variable is defined as: *To what extent is to determine in advance what the result of the activities to be carried out should be?*
* Ex-post uncertainty: This variable is defined as: *To what extent is to determine afterwards what the result is of the activities carried out?*

The ex-ante and ex-post uncertainty is measured by a score on a Likert-scale of 1 to 5, where 1 stands for a low uncertainty and 5 for a high uncertainty.

The second relevant variable for hypotheses 1.1, 1.2, 1.3 and 1.4 is hard controls. This variable is defined as: *Controls existing of clear and measurable standards and procedures, which affect the actions of persons, making them become extrinsically motivated to exhibit certain behavior.*The variable hard controls will be measured on the basis of the different types of hard controls, derived from the model of COSO (1992), as defined in section 2.4.7.:

* Segregation of duties.
* Primary registrations
* Description of procedures
* Authorization and approvals
* Verifications and reconciliations
* Safeguarding of data and assets

These six types of hard controls will be measured by evaluating to which extent each type of control is present. The presence will be rated on a Likert-scale of 1 to 5, where 1 stands for absence and 5 stands for present.

The variable hard controls will be measured as the sum of the scores of the six types of hard controls:

The third relevant variable for hypotheses 1.1, 1.2, 1.3 and 1.4 is soft controls. This variable is defined as: *Controls that affect the morality persons, making them become intrinsically motivated to exhibit certain behavior.*

From the theory discussed the best way to measure soft controls is the method of De Heus and Stremmelaar (2000). By identifying the critical organization variables that relate to this controls, the indicators that indicate this critical organization variables and the conditions that are necessary for this critical organization variables, soft controls become clearly measurable.

However, in the method of De Heus and Stremmelaar the identified critical organization variables, indicators and conditions are tailored to the entity in which these controls are present. Through this, the results of the different entities are not comparable.

Therefore, for measuring the variable soft controls the seven types of soft controls, as identified by Kaptein (1998) will be used. This way of measuring is more general and therefore more comparable than the method of De Heus and Stremmelaar. The seven types of soft controls, as explained in chapter 2.3, are:

* Clarity
* Consistency
* Achievability
* Supportability
* Visibility
* Discussability
* Sanctionability

These seven types of soft controls will be measured by evaluating to which extent each type of control is present. The presence will be rated on a Likert-scale of 1 to 5, where 1 stands for absence and 5 stands for present.

The variable hard controls will be measured as the sum of the scores of the six types of hard controls:

The variables used to measure hard controls and soft controls are largely similar to the variables Vink and Kaptein (2010) used in their research. However, an important difference to the work of Vink and Kaptein is that Vink and Kaptein used a nominal scale for measuring the hard controls and soft controls (A control is present or absent). In this research an ordinal scale is used to measure hard controls and soft controls, in order to state to which degree a control is present.

### Entity size and the use of hard and soft controls

For hypotheses 2.1, 2.2, 2.3, 2.4, 2.5 and 2.6, the variables with regard to hard and soft controls and entity size are relevant. The variables hard controls and soft controls will be measured as described in section 3.2.2.

Three variables will be identified to measure entity size:

|  |  |  |  |
| --- | --- | --- | --- |
| *Categories of entity size* | | | |
|  | **Revenue** | **Employees** | **Total assets** |
| *Category* |  |  |  |
| **1** | < 5 mio | <25 | < 3 mio |
| **2** | 5-10 mio | 25-50 | 3-6 mio |
| **3** | 10-15 mio | 50-75 | 6-9 mio |
| **4** | 15-20 mio | 75-100 | 9-12 mio |
| **5** | 20-25 mio | 100-125 | 12-15 mio |
| **6** | >25 mio | > 125 | >15 mio |

* Amount of revenue: This variable consists of the amount of revenue for a financial year.
* Amount of employees: This variable consists of the average amount of employees that worked for a year.
* Amount of total assets: This variable consists of the amount of total assets at balance date.

Those variables are derived from the usual way of measuring entity size. Among others, these variables are used by the Chamber of Commerce, the European Commission and in the Dutch civil code in order to determine entity size. Each element of entity size is measured by dividing this element in a category, based on the amount of the element. There has been chosen for this ordinal division to reduce the effect of potential outliers. The used categories are shown in the table above.

### Hard and soft controls

The relevant variables for hypothesis 3 are hard controls and soft controls. These variables are measured in the way that is described in section 3.2.2.

### Hard controls

The relevant variables for hypothesis 4.1 and 4.2 are the different types of hard controls. These variables are measured in the way that is described in section 3.2.2.

### Soft controls

The relevant variables for hypothesis 5.1 and 5.2 are the different types of soft controls. These variables are measured in the way that is described in section 3.2.2.

## Data

In the previous chapter the relevant variables with regard to the hypotheses formulated in chapter 3.2 are defined, in order to test these hypotheses. To measure this variables research will be conducted into the use of hard controls and soft controls within 25 small and medium sized entities.

The variables will be measured by obtaining data from the audit files with regard to the annual audits of these entities in 2011 or 2012 and by interviewing the involved external auditors.

The measurement of the ex-ante and ex-post uncertainty is based on the nature of the activities of the entity, as described in the audit file. For example: The activities of an entity are based on construction contracts. If the outcome of the construction contract, in advance, can be estimated reliably, the ex-ante uncertainty is classified as moderate (score: 3). Otherwise, if the outcome of a contract cannot be estimated reliably, the ex-ante uncertainty is classified as reasonably high (score: 4).

The measurement of the different types of hard controls and the different types of soft controls is based on information in the audit files, such as the description of the control environment and the questions about the use of hard- soft controls in the working papers regarding this control environment. If based on the audit files not enough information can be obtained about the use of hard and soft controls, the involved auditor will be asked to give an opinion about the presence of the different types of hard controls and soft control. If even the auditor cannot give solid opinion about the use of hard and / or soft controls, the entity concerned will not be taken into the research population.

For example: The soft control ‘Clarity’ will be measured by considering the answer on a question with regard to this control in a checklist about the control environment, which is included in the audit file. If this answer shows that expectations are not known in the entity at all, the soft control is classified as absent (score: 1), if the expectations are reasonably known within the organization and only communicated verbal, the soft control will be classified as moderate (score: 3), if the answer shows that the expectations are communicated written and verbal and the expectations are well known in throughout the organization, the soft control is classified as present (score: 5), and so on.

The same method will be used for measuring hard controls. For example: The hard control ‘segregation of duties’ will be measured by considering the answer on a question with regard to this control in a checklist about the controls in use, which is included in the audit file. If there is a segregation of duties between all of the relevant functions in the entity, the control is classified as present (score: 5), if there is a segregation of duties between most of the relevant functions in the entity, the control will be classified as reasonably present (score: 4), if there is a segregation of duties between some of the relevant functions in the entity, the control will be classified as reasonably present (score: 3), and so on.

The measurement of the variables regarding the entity size is based on the information in the financial statements on which the audit file relates. Based on the given amounts of revenue, employees and total assets, the variable is classified in the category corresponding thereto.

The obtained results about the variables will be entered on a questionnaire. This questionnaire is included in appendix 1.

## Empirical approach

### Introduction

In the previous three chapters hypotheses with regard to the use of hard and soft controls within SME’s are formulated, the relevant variables in order to test these hypothesis are defined and the way of obtaining data is explained. In this chapter the empirical approach for each of the formulated hypotheses will be explained. There is substantiated why the choice of a particular statistical test is made ​​and how the results of this test should be interpreted. All the statistical tests will be performed by using SPSS.

### Complexity and the use of hard- and soft controls

In order to test hypotheses 1.1, 1.2, 1.3 and 1.4 the correlation between the variables 'controls' and 'uncertainty' has to be determined. De data with regard to these variables is measured on an ordinal scale.

A widely used coefficient to determine the correlation between two variables is the Pearson product-moment correlation coefficient. However, this is a measure of the linear relationship between two continuous random variables. The data obtained for this study is ordinal scaled, therefore the Pearson product-moment correlation coefficient is not usable for this research.

An alternative for the Pearson product-moment correlation coefficient is the Spearman's rank correlation coefficient. The Spearman correlation coefficient is defined as the Pearson correlation coefficient between the ranked variables. The correlation coefficient is based on the rank numbers of the data instead of the data itself. Therefore it is also appropriate for ordinal data.

However, several studies support the proposition that Kendall’s tau gives a better estimate of the correlation in the population than Spearman's rho. The Kendall rank correlation coefficient is a statistic used to measure the association between two measured quantities. A tau test is a non-parametric hypothesis test for statistical dependence based on the tau coefficient. Specifically, it is a measure of rank correlation, i.e., the similarity of the orderings of the data when ranked by each of the quantities.

Kendall’s tau will be used to test hypotheses 1.1, 1.2, 1.3 and 1.4, by measuring the correlation between the ordinal variables. We will compute Kendall’s tau by using SPSS. The results will be interpreted as follows:

* Kendall's tau = - 1: There is a perfect negative correlation
* Kendall's tau = +1: There is a perfect positive correlation
* Kendall's tau = 0: There is no connection

For the intermediate values​​, the interpretation is as follows:

* 0 to 0,10: very weak / no correlation
* 0,11 to 0,30: weak correlation
* 0,31 to 0,50: reasonable correlation
* 0,51 to 0,80: strong correlation
* 0,81 to 0,99: very strong correlation

By testing the formulated hypotheses we use a significance level of 0,05, which means that H1 is accepted as the significance of the correlation is less than 0,05.

To obtain a good impression of the correlation scatter plot will be made on the basis of which it is judged whether the distribution is in line with the calculated correlation coefficient and whether there may be a correlation other than linear.

### Entity size and the use of hard and soft controls

In order to test hypotheses 2.1, 2.1, 2.3, 2.4, 2.5 and 2.6 the correlation between the variables 'controls' and 'entity size' has to be determined. De data with regard to these variables is measured on an ordinal scale. Therefore we will use Kendall’s tau, as described in section 3.4.2., to test these hypotheses.

### Hard and soft controls

In order to test hypothesis 3 the correlation between the variables 'hard controls' and 'soft controls' has to be determined. De data with regard to these variables is measured on an ordinal scale. Therefore we will use Kendall’s tau, as described in section 3.4.2., to test these hypotheses.

### Hard controls

In order to test hypothesis 4.1 the correlation within the variables ‘hard controls’ has to be determined. De data with regard to these variables is measured on an ordinal scale. Therefore we will use Kendall’s tau, as described in section 3.4.2., to test these hypotheses.

To test hypothesis 4.2., we will have to determine whether the values ​​of the measured presence of the various types of hard controls differ. For this, the Friedman test will be used. For each variable the measurements are ranked. Then the average rank score is calculated for each variable. These rank scores are compared with each other. The result of this test will be a ranking of the different variables.

By testing the formulated hypotheses we use a significance level of 0,05, which means that H1 is accepted as the significance of the correlation is less than 0,05.

### Soft controls

In order to test hypotheses 5.1 the correlation within the variables ‘soft controls’ has to be determined. De data with regard to these variables is measured on an ordinal scale. Therefore we will use Kendall’s tau, as described in section 3.4.2., to test these hypotheses.

For testing hypothesis 5.2, the Friedman test will be used, as described in section 3.4.5.

# Results

## Introduction

In the previous chapter the research approach is explained. In this chapter the results will be listed. In some cases will be referred to the tables and figures in appendix 2 for clarification.

In general, it is important to note that the data has been obtained from 25 small and medium sized entities. All of the data has been measured on an ordinal scale. The obtained data is summarized in appendix 2, output table 1.

## Complexity and the use of hard- and soft controls

The results of the statistic analyses with regard to hypotheses 1.1, 1.2, 1.3 and 1.4 is included in appendix 2, output table 2. The corresponding scatter plots are included in appendix 2, output scatterplots 1, 2, 3 and 4.

* 1. H0: The ex-ante uncertainty of the system to control and the presence of hard controls within SME’s are not negatively correlated.

H1: The ex-ante uncertainty of the system to control and the presence of hard controls within SME’s are negatively correlated.

The results show a correlation coefficient of -,495 and a significance of ,003 between ‘ex-post uncertainty’ and ‘total hard controls’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a reasonable negative correlation is assumed.  
At the significance level of 0,05 H0 is rejected and H1 is accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that the higher the ex-ante uncertainty of the system to control within an SME, the less hard controls will be used.

* 1. H0: The ex-post uncertainty of the system to control and the presence of hard controls within SME’s are not negatively correlated.

H1: The ex-post uncertainty of the system to control and the presence of hard controls within SME’s are negatively correlated.

The results show a correlation coefficient of -,409 and a significance of ,011 between ‘ex-ante uncertainty’ and ‘total hard controls’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a reasonable negative correlation is assumed.  
At the significance level of 0,05 H0 is rejected and H1 is accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that the higher the ex-post uncertainty of the system to control within an SME, the less hard controls will be used.

* 1. H0: The ex-ante uncertainty of the system to control and the presence of soft controls within SME’s are not positively correlated.

H1: The ex-ante uncertainty of the system to control and the presence of soft controls within SME’s are positively correlated.

The results show a correlation coefficient of ,313 and a significance of ,049 between ‘ex-ante uncertainty’ and ‘total soft controls’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a reasonable positive correlation is assumed.  
At the significance level of 0,05 H0 is rejected and H1 is accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that the higher the ex-ante uncertainty of the system to control within an SME, the more soft controls will be used.

* 1. H0: The ex-post uncertainty of the system to control and the presence of soft controls within SME’s are not positively correlated.

H1: The ex-post uncertainty of the system to control and the presence of soft controls within SME’s are positively correlated.

The results show a correlation coefficient of -,045 and a significance of ,789 between ‘ex-post uncertainty’ and ‘total soft controls’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a very weak negative correlation is assumed.  
At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that there is no correlation between the ex-post uncertainty of the system to control within an SME’s and the use of soft controls.

Further research gives the following results:

* Research on the correlation between hard controls and ex-post uncertainty shows significant correlations between ‘ex-post uncertainty’ and ‘segregation of duties’ (correlation coefficient = -,399, sig.= ,028), ‘primary registrations’ (correlation coefficient = -,513, sig.= ,006), ‘authorization and approvals’ (correlation coefficient = -,395, sig.= ,029) and ‘verifications and reconciliations’ (correlation coefficient = -,475, sig.= ,011).
* Research on the correlation between hard controls and ex-ante uncertainty shows a significant correlation between ‘ex -ante uncertainty’ and ‘verifications and reconciliations’ (correlation coefficient = -,525, sig.= ,003).
* Research on the correlation between soft controls and ex-post uncertainty shows no significant correlations between ‘ex post uncertainty’ and the different types of soft controls.
* Research on the correlation between soft controls and ex-ante uncertainty shows significant correlations between ‘ex-ante uncertainty’ and ‘consistency’ (correlation coefficient = ,360, sig.= ,044), ‘supportability’ (correlation coefficient = ,388, sig.= ,025), ‘visibility’ (correlation coefficient = ,411, sig.= ,018) and ‘discussability’ (correlation coefficient = ,518, sig.= ,001).

## Entity size and the use of hard and soft controls

The results of the statistic analyses with regard to hypotheses 2.1, 2.1, 2.3, 2.4, 2.5 and 2.6 is included in appendix 2, output table 3. The corresponding scatter plots are included in appendix 2, output scatterplots 5, 6, 7, 8, 9 and 10.

* 1. H0: The amount of revenue and the presence of hard controls within SME’s are not positively correlated.  
     H1: The amount of revenue and the presence of hard controls within SME’s are positively correlated.

The results show a correlation coefficient of ,126 and a significance of ,416 between ‘total hard controls’ and ‘revenue’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a weak positive correlation is assumed.

At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that there is no significant correlation between the size of an SME, in terms of the amount of revenue, and the use of hard controls.

* 1. H0: The amount of employees and the presence of hard controls within SME’s are not positively correlated.  
     H1: The amount of employees and the presence of hard controls within SME’s are positively correlated.

The results show a correlation coefficient of -,088 and a significance of ,576 between ‘total hard controls’ and ‘employees’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a very weak negative correlation is assumed.

At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that there is no significant correlation between the size of an SME, in terms of the amount of employees, and the use of hard controls.

* 1. H0: The amount of total assets and the presence of hard controls within SME’s are not positively correlated.  
     H1: The amount of total assets and the presence of hard controls within SME’s are positively correlated.

The results show a correlation coefficient of ,229 and a significance of ,142 between ‘total hard controls’ and ‘total assets’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a weak positive correlation is assumed.

At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that there is no significant correlation between the size of an SME, in terms of the amount of total assets, and the use of hard controls.

* 1. H0: The amount of revenue and the presence of soft controls within SME’s are not positively correlated.  
     H1: The amount of revenue and the presence of soft controls within SME’s are positively correlated.

The results show a correlation coefficient of ,051 and a significance of ,738 between ‘ex-post uncertainty’ and ‘‘revenue’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a very weak positive correlation is assumed.

At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that there is no significant correlation between the size of an SME, in terms of the amount of revenue, and the use of soft controls.

* 1. H0: The amount of employees and the presence of soft controls within SME’s are not positively correlated.

H1: The amount of employees and the presence of soft controls within SME’s are positively correlated.

The results show a correlation coefficient of ,117 and a significance of ,452 between ‘ex-post uncertainty’ and ‘employees’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a weak positive correlation is assumed.

At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that there is no significant correlation between the size of an SME, in terms of the amount of employees, and the use of soft controls.

* 1. H0: The amount of total assets and the presence of soft controls within SME’s are not positively correlated.

H1: The amount of total assets and the presence of soft controls within SME’s are positively correlated.

The results show a correlation coefficient of ,074 and a significance of ,631 between ‘ex-post uncertainty’ and ‘total assets’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a very weak positive correlation is assumed.

At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that there is no significant correlation between the size of an SME, in terms of the amount of total assets, and the use of soft controls.

Further research on the correlation between the use of hard controls and soft controls and entity size shows a reasonable positive significant correlation between ‘employees’ and ‘achievability’ (correlation coefficient = ,363, sig.= ,042).

## Hard and soft controls

The results of the statistic analyses with regard to hypotheses 3 is included in appendix 2, output table 4. The corresponding scatterplot is included in appendix 2, output scatterplot 11.

1. H0: The presence of hard controls and the presence of soft controls within SME’s are not negatively correlated.

H1: The presence of hard controls and the presence of soft controls within SME’s are negatively correlated.

The results show a correlation coefficient of -,031 and a significance of ,832 between ‘total hard controls’ and ‘total soft controls’. The corresponding scatter plot is in line with the results. Based on the correlation coefficient a very weak positive correlation is assumed.  
At the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of hard and soft controls within small and medium sized entities, these results mean that there is no significant correlation between the use of hard controls and the use of soft controls within SME’s.

Further research on the correlation between the use of hard controls and the use of soft controls shows a reasonable negative significant correlation between ‘consistency’ and ‘verifications and reconciliations’ (correlation coefficient = -,459, sig.= ,012) and between ‘consistency’ and ‘safeguarding of data and assets’ (correlation coefficient = -,471, sig.= ,009).

## Hard controls

The results of the statistic analyses with regard to hypotheses 4.1 and 4.2 are included in appendix 2, output tables 5 and 6.

* 1. H0: The presence of the different types of hard controls is not positively correlated.  
     H1: The presence of the different types of hard controls is positively correlated.

The results show that all the correlation coefficients of the correlations between the different types of hard controls shows reasonable to very strong positive significant correlations (correlation coefficients between ,364 and ,818, sig. between ,000 and 0,035), except the correlations between ‘description of procedures’ and ‘primary registrations’ (correlation coefficient = ,254, sig. = ,148) and between ‘authorization and approvals’ and ‘safeguarding of assets and data’ (correlation coefficient = ,325, sig. = 0,59). Although these variables also show a positive correlation, these correlations are not significant.

In view of the small importance of the non-significant correlations (2 out of 15) and the fact that these correlations, although not significant, are positive, at the significance level of 0,05 H0 is rejected and H1 is accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that there is a positive significant correlation between the use of the different types of hard controls within SME’s. The more one type of hard control is used, the more the other types of hard controls are used.

* 1. H0: The presence of the different types of hard controls does not differ.

H1: The presence of the different types of hard controls differs .

The results show that the different types of hard controls can be ranked on the basis of the extent to which they are assumed to be present. This ranking is as follows, from most present to least present: ‘verifications and reconciliations’, ‘authorization and approvals’, ‘primary registrations’, ‘segregation of duties’, safeguarding of data and assets’ and ‘description of procedures’. However, the significance of this ranking is ,211, which means that at the significance level of 0,05 H0 is not rejected and H1 is not accepted.

Regarding the use of hard controls within small and medium sized entities, these results mean that the presence of the different types of hard controls does not differ.

## Soft controls

The results of the statistic analyses with regard to hypotheses 5.1 and 5.2 are included in appendix 2, output tables 7 and 8.

* 1. H0: The presence of the different types of soft controls is not positively correlated.  
     H1: The presence of the different types of soft controls is positively correlated.

The results show that all the correlation coefficients of the correlations between the different types of soft controls shows reasonable to strong positive significant correlations (correlation coefficients between ,365 and ,756, sig. between ,000 and 0,044), except the correlation between ‘sanctionability’ and ‘discussability’ (correlation coefficient = ,296, sig. = ,0,82). Although these variables also show a positive correlation, this correlation is not significant.   
In view of the small importance of the non-significant correlation (1 out of 21) and the fact that this correlations, although not significant, is positive, at the significance level of 0,05 H0 is rejected and H1 is accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that there is a positive significant correlation between the use of the different types of soft controls within SME’s. The more one type of soft control is used, the more the other types of soft controls are used.

* 1. H0: The presence of the different types of soft controls does not differ.

H1: The presence of the different types of soft controls differs.

The results show that the different types of soft controls can be ranked on the basis of the extent to which they are assumed to be present. This ranking is as follows, from most present to least present: ‘clarity’, ‘consistency’, ‘achievability’, ‘supportability’, ‘sanctionability’, ‘discussability’ and ‘visibility’. The significance of this ranking is ,002, which means that at the significance level of 0,05 H0 is rejected and H1 is accepted.

Regarding the use of soft controls within small and medium sized entities, these results mean that the presence of the different types of soft controls differs. Clarity is the most common and visibility the least common type of soft control.

# Discussion

## Introduction

In the previous chapter the results of this research have been presented. In this chapter the results will be discussed.

## Complexity and the use of hard- and soft controls

The fact that hypotheses 1.4 H0 is rejected shows that soft controls correlate positively with ex-ante uncertainty. This can be explained because even before the activities to control are being carried out a culture must be created from which follows that the activities will be carried out as expected. By the lack of clear and measurable rules and standards in advance, cannot be relied on hard controls. Therefore the entity needs to use soft controls.  
Hypothesis 1.3 H0 is not rejected. The ex-post uncertainty is not significant correlated with soft controls. By the lack of clear and measurable results afterwards it is not possible to held employees accountable for the achieved results and to take action to adjust in response to these results. In other words: The image of controls as a thermostat, such as use by Hofstede (1981) is not applicable to soft controls because of the non-cybernetic character of these type of controls. The use of soft controls afterwards tends to ‘when the steed is stolen, the stable-door is locked.’

Part of the explanation for the lack of a positive correlation between the use of soft controls and the ex-post uncertainty of the system to control may lie in the relatively small number of partial observations (n = 25). As the scatter plot shows the observations of ex-post uncertainty clustered. In order to make strong statements about the correlation between the ex-post uncertainty and the presence of soft controls a larger sample needs to be used containing a better spread in the observations for ex-ante uncertainty.

Hypotheses 1.1 H0 is rejected. In line with our expectations, there appears to be a reasonable negative significant correlation. The strong link between ex-post uncertainty and hard controls get confirmed by the fact that four of the six types of hard controls show a reasonable to strong negative significant correlation with the ex-post uncertainty.

The rejection of 1.2 H0 also shows a reasonable negative significant correlation between the ex-ante uncertainty and the hard controls. The hard control ‘verifications and reconciliations’ shows a strong negative significant correlation with ‘ex-ante uncertainty’. That precisely this control shows a negative correlation with ex-ante uncertainty can be explained because a low uncertainty in advance makes it possible to set clear and measurable rules and standards about the expected results. The actual performance will be controlled by verifying and reconciling this performance with the rules and standards that are set in advance.

## Entity size and the use of hard and soft controls

The results with regard to hypotheses 2.1, 2.2, 2.3, 2.4, 2.5 and 2.6 shows that there is no significant correlation between entity size and the use of hard controls or soft controls. Only a reasonable positive significant correlation is found between ‘employees’ and the soft control ‘achievability’. However, with the lack of any other significant correlation between controls and entity size in mind, this correlation is likely a coincidence.

The lack of a correlation between entity size and the presence of hard and soft controls supports the hypothesis that the choice of hard controls and / or soft controls mainly depends on the ex-post and ex-ante uncertainty of the system to control.

However, it is possible that the absence of any correlation between entity size and the use of hard and / or soft controls is caused by the small spread in the population of the variables with regard to the entity size, namely the amount of revenue, the amount of employees and the amount of total assets. 88% of the observations of revenue lies in between an annual revenue of 0 and 25 million, 84% of the observations of employees lies in between 0 and 125 employees and 85% of the observations of total assets lies in between total assets of 0 and 15 million.

## Hard and soft controls

Hypothesis 3 H0 is not rejected, which means that there is no negative significant correlation between hard controls and soft controls. The results show that there is no significant correlation between hard controls and soft controls at all. It can be concluded that hard controls and soft controls are no substitutes for each other.

A confounding factor in this study may be that the entities surveyed all subject to an annual audit. To obtain an unqualified auditor’s report, the internal control within these companies has to meet a minimum level. This minimum level is mainly related to the presence of hard controls. This may be disturb the assumed relationship between hard controls and soft controls.

The distribution in the scatterplot, related to the correlation between hard controls and soft controls, shows indeed that the presence of hard controls starts from a certain level, which indices a minimum level of hard controls. This supports the assumptions of the agency theory of Jensen and Meckling (1976) that there is always a degree of agency costs needed to control an entity.

In the same scatterplot also the soft controls show a minimum level of presence. This is in line with the theory of Ouchi (1979) which assumes that each type controls mechanism needs a minimum level of social requirements.

Reasonable negative significant correlations are found between ‘verifications and reconciliations’ and ‘consistency’ and between ‘safeguarding of data and assets’. At a significance level of 0,10 even a weak negative significant correlation exists between ‘total hard controls’ and ‘consistency’. This can be explained because the implementation of the soft control ‘consistency’, such as setting a good example, mainly comes out of the management, as well as the implementation of hard controls. When the management is aware of the absence of hard controls will they be consistent in applying soft controls with the aim to compensate for the absence of hard controls.

## Hard controls

The rejection of hypothesis 4.1 H0 shows that the different types of hard controls are reasonable to very strong positive significant correlated with each other. This can be explained because when an entity decides to implement or modify a system of hard controls, they will not only focus on a particular control. In addition, as previously mentioned, the various types of hard controls are interdependent in order to function properly.

This is also endorsed by the results of hypothesis 4.2. H0 is not rejected, which means that a certain type of hard control does not occur more than another. This indicates that the different types of hard controls need each other to function properly.

## Soft controls

The rejection of hypothesis 5.1 H0 shows that the different types of soft controls are reasonable to strong positive significant correlated with each other. This can be explained because when an entity decides to implement or modify a system of soft controls, they will not only focus on a particular control. In addition, the different types of soft controls are probably not as interdependent as the different types of hard controls but they still have an enhancing effect on each other.

That the different types of soft controls are not as interdependent as the different types of hard controls is also endorsed by the results of hypothesis 5.2. H0 is rejected, which means that the extent to which the various types of soft controls occur varies significantly.

Organizing the various types of soft controls the extent to which they occur leads to the following list, listed from most present to least present: Clarity, Consistency, Achievability, Supportability, Sanctionability, Discussability, and Visibility.

It is plausible that clarity and consistency are the most common types of soft controls because these controls mainly come out of the management (‘from above’). When it comes to the implementation of soft controls clarity is the first step. Clarity about expectations is necessary before further steps can be taken. The high position of consistency on the list is explained by the same reason. To ensure that employees will meet to certain expectations, it is first important to make those expectations clear and then being consistent in meeting these expectations, by setting an example. This interpretation is in line with the report “Tone at the top” of the NBA (2012), which advocates that the presence of values ​​within an organization starts with the leadership.

The role of the management in the other types of soft controls is smaller and the role of employees greater (soft controls are implemented ‘from below’), making it more difficult for the management to make these types of soft controls present.

# Conclusion

## Introduction

As mentioned in the introduction, the research question of this research is:

*How do Dutch Small and Medium Sized entities (SME’s) use hard- and soft-controls to keep their organizations ‘in control’?*

This question will be answered in this chapter, based on the literature review in chapters 2.1, 2.2 and 2.3 and on the research that is done in chapters 3, 4 and 5.

## Conclusion

An entity can be seen as a system that pursues an objective. Agency problems within entities could cause that the objective is not fully achieved by the entity. Control is defined as the process to ensure that the entity’s objectives are achieved. To achieve the objectives, entities uses systems of control. This system of control consists of soft controls, which can be defined as controls that affect the morality persons, making them become intrinsically motivated to exhibit certain behavior, and hard controls, which can be defined as controls existing of clear and measurable standards and procedures, which affect the actions of persons, making them become extrinsically motivated to exhibit certain behavior.

Based on exploratory research, Kaptein (1998) has defined seven types of soft controls, namely clarity, consistency, achievability, supportability, visibility, discussability and sanctionability. For this research, also six types of hard controls are defined, based on the model of COSO (1992), namely segregation of duties, primary registrations, description of procedures, authorization and approvals, verifications and reconciliations and safeguarding of data and assets.

Many descriptive researches have been done on the use of hard- and soft controls in systems of control. (i.e. Ouchi (1979), Hofstede (1981), Merchant (1982), Mintzberg (1983) and Spekle (2001)) Although the terms 'hard controls' and 'soft controls' are not used in these studies, the descriptions of the types of controls that are mentioned in these studies shows that this distinction can be made. In these descriptive studies it is assumed that the choice for the use hard controls or soft controls depends on the complexity of the system to control, caused by the ex-ante and ex-post degree of uncertainty of the system to control. Ex-ante uncertainty is defined as: to what extent is to determine in advance what the result of the activities to be carried out should be? Ex-post uncertainty is defined as: to what extent is to determine afterwards what the result is of the activities carried out?

If the degrees of ex-ante and ex-post uncertainty are high, the system to control classifies as complex. If the degrees of ex-ante and ex-post uncertainty are low, the system to control classifies as simple. The more complex a system to control, the more soft controls will be used. The more simple a system to control, the more hard controls will be used.

In order to answer the research question, based on the literature Hypotheses are formulated with regard to the coherence between the use of hard controls, the use of soft controls, the complexity of an entity, the size of an entity, and the coherence within the different types of hard- and soft controls.

Hypotheses are tested based on data of 25 small and medium sized companies. Results show that within SME’s hard controls shows a reasonable negative significant correlation between hard controls and the ex-ante and ex-post uncertainty, which means that the more complex an entity is, in terms of ex-ante and ex-post uncertainty, the less hard controls are being used. A reasonable positive significant correlation exist between soft controls and the ex-ante uncertainty, which means that within SME’s, the more complex the entity to control is in terms of the ex-ante uncertainty, the more soft controls are being used. No significant correlation is found between the ex-post uncertainty and the use of soft controls, what can be explained by the non-cybernetic character of soft controls, making some feed-back loop is missing. Results also show that in the tested population neither hard controls, nor soft controls show any correlation with firm-size.

No correlation is found between hard controls and soft controls, which mean that hard controls and soft controls do not substitute. It appears that both hard controls and soft controls show a minimum degree of presence. This supports the argument of Jensen and Meckling (1976) that there will always be bonding costs within entities. Also the assertion of Ouchi (1979) that each type of control mechanism needs a minimum level of social requirements is supported by these findings.

Results show that both the different types of hard controls and the different types of soft controls are positively correlated. However, except ‘consistency’ in two cases, the different types of soft controls does no correlate with the different types of hard controls. This is explained because when a system of hard controls or a system of soft controls is implemented, the focus is not only on a single but the system of controls is implemented as a whole. Moreover, the correlation confirmed that hard controls are interdependent. This claim is also supported by results showing that the level of presence of the different types of hard controls do not differ significantly. However, the extent to which the various types of soft controls occur varies significantly. ‘Clarity’ and ‘Consistency’ are the most common types of soft controls because these controls mainly comes out of the management (‘from above’) while the other types of soft controls are more implemented ‘from below’.

## Limitations

Although this research provides some clear and useful results about the use of hard and soft controls within SME's, it is necessary to be aware of some limitations of this research. These limitations will be mentioned in this chapter.

First we must consider the study population as fairly small (n = 25) so that the influence of a single observation, or lack thereof, can be large. As mentioned earlier in this research, the population is also quite narrow. In particular, the distribution of the variables related to entity size is possible to narrow to make reliable statements about them.

To get a good comparability of controls, it was decided to identify the concepts of hard controls and soft controls on the basis of the different types of them. This brings two risks with it:

* Certain types of controls are measured to generally. In other words, controls may be taken together although they should be measured separately.
* Relevant controls are not identified as such, so they are not included in the variables for the research.

Moreover, defining the variables ignored the fact that they cannot be considered general but need to be tailored to the system to control. However, for the sake of comparability of observations it is virtually impossible to prevent this.

Another limitation with regard to the variables, is that in the determination of the variables ‘hard controls’ and ‘soft controls’, as the sum of the different types, no account is taken of the possible mutually different importance of the different types of controls in the system of control as a whole, and as a result a different weighting of the types of controls.

With regard to the obtained data it can be seen as a limitation that this data is measured on an ordinal scale. The weakness of this method of measurement is that the data used for the research is derived from the data on which statements are made. Furthermore, the possible subjectivity of the researcher and the interviewed involved auditors play a role in the reliability of the obtained data.

## Recommedations for further research

In response to the findings of this study, there are some recommendations for doing further research.

As described in the limitations of this study, it is possible to make stronger statements about the use of hard and soft controls when a larger and wider population is used. A replay of this study on a larger and broader population is therefore recommended.

In the limitations of this study is also included the limitation of measuring on an ordinal scale. The ability to measure controls on a ratio scale, where variables are based on clear measurable values​​, is recommended. Hereby, the comparability of the data should be considered.

In this research hypothesis formed and tested, mainly on the basis of the literature on systems of control. However, especially when it comes to the use of soft controls, other than the examined factors will play a role in the use of soft controls. These include more psychological factors such as a particular leadership style or the distance between ownership and control. Research on the importance of such factors is recommended.

This research is mainly focused on the presence of soft controls within SME's. It is also recommended to conduct more research to the effect of controls. Not only by identifying the controls that do not work, as in the work of Vink and Kaptein (2008), but also to the controls that do work properly.

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# Appendices

## Appendix 1 - Questionnaire

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Questionnaire – hard controls and soft controls within SME’s** | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  | Company name: |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  | **System to control** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | < 5 mio | 5-10 mio | 10-15 mio | 15-20 mio | 20-25 mio | >25 mio |  |
| 1.1 | Revenue |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | <25 | 25-50 | 50-75 | 75-100 | 100-125 | > 125 |  |
| 1.2 | Employees |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | < 3 mio | 3-6 mio | 6-9 mio | 9-12 mio | 12-15 mio | >15 mio |  |
| 1.3 | Total assets |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  | *Complexity* |  |  |  |  |  |  |  |  |  |
| 2.1 | Ex-post degree of uncertainty |  | low | 1 | 2 | 3 | 4 | 5 | high |  |
| 2.2 | Ex-post degree of uncertainty |  | low | 1 | 2 | 3 | 4 | 5 | high |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  | **System of control** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  | *Hard controls* |  |  |  |  |  |  |  |  |  |
| 3.1 | Segregation of duties |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 3.2 | Primary registrations |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 3.3 | Description of procedures |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 3.4 | Authorization and approvals |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 3.5 | Verifications and reconciliations |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 3.6 | Safeguarding of data and assets |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  | *Soft controls* |  |  |  |  |  |  |  |  |  |
| 4.1 | Clarity |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 4.2 | Consistency |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 4.3 | Achievability |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 4.4 | Supportability |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 4.5 | Visibility |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 5.6 | Discussability |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
| 4.7 | Sanctionability |  | absent | 1 | 2 | 3 | 4 | 5 | present |  |
|  |  |  |  |  |  |  |  |  |  |  |

## Appendix 2 – Results overview

### General

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Output table 1:* | Value | **1** | **2** | **3** | **4** | **5** | **6** | **Total** |
| Variable |  |  |  |  |  |  |  |  |
| **Revenue** |  | 4 | 5 | 6 | 3 | 4 | 3 | **25** |
| **Employees** |  | 7 | 8 | 2 | 1 | 3 | 4 | **25** |
| **Total assets** |  | 5 | 7 | 3 | 3 | 2 | 5 | **25** |
| **Ex-post uncertainty** |  | 2 | 9 | 5 | 8 | 1 | n.a. | **25** |
| **Ex-ante uncertainty** |  | 9 | 14 | 2 | 0 | 0 | n.a. | **25** |
| **Segregation of duties** |  | 0 | 4 | 8 | 8 | 5 | n.a. | **25** |
| **Primairy registrations** |  | 0 | 3 | 4 | 15 | 3 | n.a. | **25** |
| **Description of procedures** |  | 2 | 3 | 8 | 9 | 3 | n.a. | **25** |
| **Authorization and approvals** |  | 1 | 3 | 5 | 10 | 6 | n.a. | **25** |
| **Verifications and reconciliations** |  | 0 | 1 | 7 | 13 | 4 | n.a. | **25** |
| **Safeguarding of data and assets** |  | 0 | 4 | 7 | 10 | 4 | n.a. | **25** |
| **Clarity** |  | 0 | 3 | 3 | 12 | 7 | n.a. | **25** |
| **Consistency** |  | 0 | 4 | 1 | 16 | 4 | n.a. | **25** |
| **Achievability** |  | 0 | 1 | 5 | 18 | 1 | n.a. | **25** |
| **Supportability** |  | 0 | 5 | 6 | 10 | 4 | n.a. | **25** |
| **Visibility** |  | 0 | 9 | 5 | 8 | 3 | n.a. | **25** |
| **Discussability** |  | 1 | 5 | 8 | 7 | 4 | n.a. | **25** |
| **Sanctionability** |  | 0 | 6 | 8 | 6 | 5 | n.a. | **25** |

### Complexity and the use of hard- and soft controls

|  |  |  |  |
| --- | --- | --- | --- |
| *Output table 2:* |  | **Ex-ante uncertainty** | **Ex-post uncertainty** |
| **Segregation of duties** | Correlation Coefficient | -,327 | -,399 |
|  | Sig. (2-tailed) | ,058 | ,028 |
|  | N | 25 | 25 |
| **Primairy registrations** | Correlation Coefficient | -,345 | -,513 |
|  | Sig. (2-tailed) | ,051 | ,006 |
|  | N | 25 | 25 |
| **Description of procedures** | Correlation Coefficient | -,181 | -,267 |
|  | Sig. (2-tailed) | ,292 | ,140 |
|  | N | 25 | 25 |
| **Authorization and approvals** | Correlation Coefficient | -,319 | -,395 |
|  | Sig. (2-tailed) | ,064 | ,029 |
|  | N | 25 | 25 |
| **Verifications and reconciliations** | Correlation Coefficient | -,525 | -,475 |
|  | Sig. (2-tailed) | ,003 | ,011 |
|  | N | 25 | 25 |
| **Safeguarding of data and assets** | Correlation Coefficient | -,286 | -,287 |
|  | Sig. (2-tailed) | ,098 | ,117 |
|  | N | 25 | 25 |
| **Total hard controls** | Correlation Coefficient | -,409 | -,495 |
|  | Sig. (2-tailed) | ,011 | ,003 |
|  | N | 25 | 25 |
| **Clarity** | Correlation Coefficient | ,060 | -,212 |
|  | Sig. (2-tailed) | ,731 | ,251 |
|  | N | 25 | 25 |
| **Consistency** | Correlation Coefficient | ,360 | ,194 |
|  | Sig. (2-tailed) | ,044 | ,303 |
|  | N | 25 | 25 |
| **Achievability** | Correlation Coefficient | ,125 | -,072 |
|  | Sig. (2-tailed) | ,491 | ,709 |
|  | N | 25 | 25 |
| **Supportability** | Correlation Coefficient | ,388 | ,000 |
|  | Sig. (2-tailed) | ,025 | 1,000 |
|  | N | 25 | 25 |
| **Visibility** | Correlation Coefficient | ,411 | -,071 |
|  | Sig. (2-tailed) | ,018 | ,696 |
|  | N | 25 | 25 |
| **Discussability** | Correlation Coefficient | ,548 | ,080 |
|  | Sig. (2-tailed) | ,001 | ,659 |
|  | N | 25 | 25 |
| **Sanctionability** | Correlation Coefficient | ,079 | -,035 |
|  | Sig. (2-tailed) | ,647 | ,847 |
|  | N | 25 | 25 |
| **Total soft controls** | Correlation Coefficient | ,313 | -,045 |
|  | Sig. (2-tailed) | ,049 | ,789 |
|  | N | 25 | 25 |
|  |  |  |  |
|  | = Correlation is significant at the 0.05 level (2-tailed) | | |

|  |  |
| --- | --- |
| *Output scatterplot 1:* |  |
| Correlation Coefficient | -,409 |
| Sig. (2-tailed) | ,011 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 2:* |  |
| Correlation Coefficient | -,495 |
| Sig. (2-tailed) | ,003 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 3:* |  |
| Correlation Coefficient | ,313 |
| Sig. (2-tailed) | ,049 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 4:* |  |
| Correlation Coefficient | -,045 |
| Sig. (2-tailed) | ,789 |
| N | 25 |

### Entity size and the use of hard and soft controls

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Output table 3:* |  | **Revenue** | **Employees** | **Total assets** |
| **Segregation of duties** | Correlation Coefficient | ,277 | -,068 | ,238 |
| Sig. (2-tailed) | ,096 | ,687 | ,155 |
| N | 25 | 25 | 25 |
| **Primairy registrations** | Correlation Coefficient | -,051 | -,205 | ,247 |
| Sig. (2-tailed) | ,766 | ,237 | ,149 |
| N | 25 | 25 | 25 |
| **Description of procedures** | Correlation Coefficient | ,153 | ,106 | ,179 |
| Sig. (2-tailed) | ,356 | ,527 | ,282 |
| N | 25 | 25 | 25 |
| **Authorization and approvals** | Correlation Coefficient | ,203 | -,094 | ,272 |
| Sig. (2-tailed) | ,221 | ,577 | ,103 |
| N | 25 | 25 | 25 |
| **Verifications and reconciliations** | Correlation Coefficient | -,076 | -,175 | ,176 |
| Sig. (2-tailed) | ,656 | ,313 | ,305 |
| N | 25 | 25 | 25 |
| **Safeguarding of data and assets** | Correlation Coefficient | ,138 | -,108 | ,317 |
| Sig. (2-tailed) | ,408 | ,525 | ,059 |
| N | 25 | 25 | 25 |
| **Total hard controls** | Correlation Coefficient | ,126 | -,088 | ,229 |
| Sig. (2-tailed) | ,416 | ,576 | ,142 |
| N | 25 | 25 | 25 |
| **Clarity** | Correlation Coefficient | ,056 | -,009 | ,079 |
| Sig. (2-tailed) | ,738 | ,958 | ,642 |
| N | 25 | 25 | 25 |
| **Consistency** | Correlation Coefficient | ,034 | ,224 | -,019 |
| Sig. (2-tailed) | ,845 | ,202 | ,911 |
| N | 25 | 25 | 25 |
| **Achievability** | Correlation Coefficient | ,107 | ,363 | ,038 |
| Sig. (2-tailed) | ,543 | ,042 | ,831 |
| N | 25 | 25 | 25 |
| **Supportability** | Correlation Coefficient | ,071 | ,099 | ,021 |
| Sig. (2-tailed) | ,671 | ,559 | ,900 |
| N | 25 | 25 | 25 |
| **Visibility** | Correlation Coefficient | -,004 | ,004 | ,042 |
| Sig. (2-tailed) | ,980 | ,980 | ,802 |
| N | 25 | 25 | 25 |
| **Discussability** | Correlation Coefficient | -,090 | ,088 | -,111 |
| Sig. (2-tailed) | ,587 | ,599 | ,503 |
| N | 25 | 25 | 25 |
| **Sanctionability** | Correlation Coefficient | ,143 | ,072 | ,306 |
| Sig. (2-tailed) | ,387 | ,670 | ,066 |
| N | 25 | 25 | 25 |
| **Total softcontrols** | Correlation Coefficient | ,051 | ,117 | ,074 |
| Sig. (2-tailed) | ,738 | ,452 | ,631 |
| N | 25 | 25 | 25 |
|  |  |  |  |  |
|  | = Correlation is significant at the 0.05 level (2-tailed) | | | |

|  |  |
| --- | --- |
| *Output scatterplot 5:* |  |
| Correlation Coefficient | ,126 |
| Sig. (2-tailed) | ,416 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 6:* |  |
| Correlation Coefficient | -,088 |
| Sig. (2-tailed) | ,576 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 7:* |  |
| Correlation Coefficient | ,229 |
| Sig. (2-tailed) | ,142 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 8:* |  |
| Correlation Coefficient | ,051 |
| Sig. (2-tailed) | ,738 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 9:* |  |
| Correlation Coefficient | ,117 |
| Sig. (2-tailed) | ,452 |
| N | 25 |

|  |  |
| --- | --- |
| *Output scatterplot 10:* |  |
| Correlation Coefficient | ,074 |
| Sig. (2-tailed) | ,631 |
| N | 25 |

### Hard and soft controls

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Output table 4:* |  | **Segregation of duties** | **Primairy registrations** | **Description of procedures** | **Authorization and approvals** | **Verifications and reconciliations** | **Safeguarding of data and assets** | **Total hard controls** |
| **Clarity** | Correlation Coefficient | ,290 | ,277 | ,308 | ,291 | ,020 | -,047 | ,215 |
| Sig. (2-tailed) | ,097 | ,121 | ,077 | ,096 | ,912 | ,791 | ,187 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Consistency** | Correlation Coefficient | -,255 | ,006 | -,184 | -,189 | -,459 | -,471 | -,285 |
| Sig. (2-tailed) | ,152 | ,975 | ,301 | ,287 | ,012 | ,009 | ,087 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Achievability** | Correlation Coefficient | ,017 | ,221 | ,107 | ,011 | -,159 | -,155 | ,015 |
| Sig. (2-tailed) | ,926 | ,235 | ,553 | ,950 | ,395 | ,397 | ,928 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Supportability** | Correlation Coefficient | -,071 | ,114 | ,057 | -,071 | -,306 | -,126 | -,095 |
| Sig. (2-tailed) | ,682 | ,520 | ,738 | ,680 | ,084 | ,469 | ,553 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Visibility** | Correlation Coefficient | -,044 | ,153 | ,102 | ,036 | -,197 | -,067 | -,044 |
| Sig. (2-tailed) | ,798 | ,387 | ,555 | ,837 | ,269 | ,698 | ,786 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Discussability** | Correlation Coefficient | -,160 | ,116 | ,112 | -,139 | -,262 | -,114 | -,132 |
| Sig. (2-tailed) | ,349 | ,508 | ,509 | ,416 | ,136 | ,507 | ,407 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Sanctionability** | Correlation Coefficient | ,009 | ,087 | ,178 | ,109 | -,108 | ,057 | ,047 |
| Sig. (2-tailed) | ,960 | ,619 | ,298 | ,524 | ,540 | ,740 | ,769 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Total soft controls** | Correlation Coefficient | -,012 | ,165 | ,124 | ,004 | -,214 | -,138 | -,031 |
| Sig. (2-tailed) | ,941 | ,310 | ,432 | ,980 | ,188 | ,387 | ,832 |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
|  |  |  |  |  |  |  |  |  |
|  | = Correlation is significant at the 0.05 level (2-tailed) | | | | | |  |  |

|  |  |
| --- | --- |
| *Output scatterplot 11:* |  |
| Correlation Coefficient | -,031 |
| Sig. (2-tailed) | ,832 |
| N | 25 |

### Hard controls

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Output table 5:* |  | **Segregation of duties** | **Primairy registrations** | **Description of procedures** | **Authorization and approvals** | **Verifications and reconciliations** | **Safeguarding of data and assets** |
| **Segregation of duties** | Correlation Coefficient | 1,000 |  |  |  |  |  |
| Sig. (2-tailed) | . |  |  |  |  |  |
| N | 25 |  |  |  |  |  |
| **Primairy registrations** | Correlation Coefficient | ,421\* | 1,000 |  |  |  |  |
| Sig. (2-tailed) | ,017 | . |  |  |  |  |
| N | 25 | 25 |  |  |  |  |
| **Description of procedures** | Correlation Coefficient | ,578\*\* | ,254 | 1,000 |  |  |  |
| Sig. (2-tailed) | ,001 | ,148 | . |  |  |  |
| N | 25 | 25 | 25 |  |  |  |
| **Authorization and approvals** | Correlation Coefficient | ,818\*\* | ,397\* | ,548\*\* | 1,000 |  |  |
| Sig. (2-tailed) | ,000 | ,024 | ,001 | . |  |  |
| N | 25 | 25 | 25 | 25 |  |  |
| **Verifications and reconciliations** | Correlation Coefficient | ,550\*\* | ,540\*\* | ,530\*\* | ,471\*\* | 1,000 |  |
| Sig. (2-tailed) | ,002 | ,003 | ,003 | ,008 | . |  |
| N | 25 | 25 | 25 | 25 | 25 |  |
| **Safeguarding of data and assets** | Correlation Coefficient | ,449\*\* | ,481\*\* | ,364\* | ,325 | ,529\*\* | 1,000 |
| Sig. (2-tailed) | ,009 | ,007 | ,035 | ,059 | ,003 | . |
| N | 25 | 25 | 25 | 25 | 25 | 25 |
|  |  |  |  |  |  |  |  |
|  | = Correlation is significant at the 0.05 level (2-tailed) | | | | | |  |

|  |  |
| --- | --- |
| *Output table 6:* | |
| **Ranks** | |
|  | Mean Rank |
| Verifications and reconciliations | 3,88 |
| Authorization and approvals | 3,78 |
| Primairy registrations | 3,68 |
| Segregation of duties | 3,48 |
| Safeguarding of data and assets | 3,26 |
| Description of procedures | 2,92 |
|  |  |
| **Test Statistics** | |
| N | 25 |
| Chi-Square | 7,135 |
| df | 5 |
| Asymp. Sig. | ,211 |

### Soft controls

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Output table 7:* |  | **Clarity** | **Consistency** | **Achievability** | **Supportability** | **Visibility** | **Discussability** | **Sanctionability** |
| **Clarity** | Correlation Coefficient | 1,000 |  |  |  |  |  |  |
| Sig. (2-tailed) | . |  |  |  |  |  |  |
| N | 25 |  |  |  |  |  |  |
| **Consistency** | Correlation Coefficient | ,504 | 1,000 |  |  |  |  |  |
| Sig. (2-tailed) | ,005 | . |  |  |  |  |  |
| N | 25 | 25 |  |  |  |  |  |
| **Achievability** | Correlation Coefficient | ,511 | ,718 | 1,000 |  |  |  |  |
| Sig. (2-tailed) | ,006 | ,000 | . |  |  |  |  |
| N | 25 | 25 | 25 |  |  |  |  |
| **Supportability** | Correlation Coefficient | ,590 | ,639 | ,714 | 1,000 |  |  |  |
| Sig. (2-tailed) | ,001 | ,000 | ,000 | . |  |  |  |
| N | 25 | 25 | 25 | 25 |  |  |  |
| **Visibility** | Correlation Coefficient | ,582 | ,573 | ,566 | ,756 | 1,000 |  |  |
| Sig. (2-tailed) | ,001 | ,001 | ,002 | ,000 | . |  |  |
| N | 25 | 25 | 25 | 25 | 25 |  |  |
| **Discussability** | Correlation Coefficient | ,385 | ,488 | ,429 | ,588 | ,625 | 1,000 |  |
| Sig. (2-tailed) | ,026 | ,006 | ,017 | ,001 | ,000 | . |  |
| N | 25 | 25 | 25 | 25 | 25 | 25 |  |
| **Sanctionability** | Correlation Coefficient | ,452 | ,420 | ,365 | ,417 | ,598 | ,296 | 1,000 |
| Sig. (2-tailed) | ,010 | ,018 | ,044 | ,015 | ,001 | ,082 | . |
| N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
|  |  |  |  |  |  |  |  |  |
|  | = Correlation is significant at the 0.05 level (2-tailed) | | | | | | |  |

|  |  |
| --- | --- |
| *Output table 8:* | |
| **Ranks** | |
|  | Mean Rank |
| Clarity | 4,94 |
| Consistency | 4,56 |
| Achievability | 4,48 |
| Supportability | 3,86 |
| Sanctionability | 3,70 |
| Discussability | 3,40 |
| Visibility | 3,06 |
|  |  |
| **Test Statistics** | |
| N | 25 |
| Chi-Square | 20,794 |
| df | 6 |
| Asymp. Sig. | ,002 |