

MARIËLLE SONNENBERG

The Signalling Effect of HRM on Psychological Contracts of Employees

A multi-level perspective



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Erasmus Research Institute of Management (ERIM)
RSM Erasmus University / Erasmus School of Economics
Erasmus University Rotterdam
Internet: <http://www.erim.eur.nl>

ERIM Electronic Series Portal: <http://hdl.handle.net/1765/1>

ERIM Ph.D. Series Research in Management, 86

ISBN-10: 90-5892-119-0

ISBN-13: 978-90-5892-119-2

Design: B&T Ontwerp en advies www.b-en-t.nl / Print: Haveka www.haveka.nl

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The Signalling Effect of HRM on Psychological Contracts of Employees A multi-level perspective

*Het signaal effect van HRM op psychologische contracten van medewerkers
Een multi-level benadering*

Proefschrift

ter verkrijging van de graad van doctor
aan de Erasmus Universiteit Rotterdam
op gezag van de Rector Magnificus
Prof.dr. S.W.J. Lamberts
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op
donderdag 12 oktober om 16:00 uur

door
Mariëlle Sonnenberg
Geboren te Zwolle

Promotiecommissie

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VOORWOORD (PREFACE IN DUTCH)

Waarom ben ik ook alweer aan dit proefschrift begonnen? Omdat ik nieuwsgierig was. Omdat ik mij verwonderde over hoe weinig vernieuwend er in het vakgebied organisatie de afgelopen 100 jaar geschreven was. Omdat mijn onderzoek wel nieuw zou zijn! Om te leren. Hoe meer onderzoek ik deed, hoe minder ik wist. Een fascinerend proces dat me nieuwe idolen heeft gebracht (zoals Von Clausewitz, Weick, Mintzberg, Becker en Huselid) en me mijn familie en vrienden nog meer heeft leren waarderen.

Mijn eerste leermeesters, Frits Gosselink en Piet Moerman, ben ik erg dankbaar aangezien zij me indirect hebben aangezet tot het schrijven van dit proefschrift. Beiden zijn zij zeer inspirerende mensen die ieder op hun manier een bijzondere invloed op mijn ontwikkeling hebben gehad.

Al zou ik het graag anders zien, ik vrees dat ik in dit proces vooral last van mezelf heb gehad. Wellicht is de grootste overwinning dan ook die op mijzelf (met wat medische hulp). Ik heb me behoorlijk afgereageerd op de mensen in mijn directe omgeving. Dat zij er nog steeds zijn, stelt me gerust. Ik ben hen veel dank schuldig.

Mijn promotoren, Jaap Paauwe en Bas Koene, hebben heel wat met me te stellen gehad. Hun tomeloze inzet heeft mij op de rails gehouden. Gelukkig hebben we ook ontzettend veel plezier gehad.

Ik wil ook de leden van mijn Kleine Commissie bedanken voor hun inspanningen - Deanne den Hartog, Riccardo Peccei en Rene Schalk. Ze hebben mij geholpen om de lijn van mijn betoog aan te scherpen. Ook de overige leden van mijn commissie wil ik bedanken voor hun bereidheid deel te nemen aan de ceremonie – Philip Dewe en Luc Sels.

Mijn paranimfen zijn heel bewust gekozen. Judie is mijn steun en toeverlaat geweest afgelopen jaren. We hebben ontzettend veel plezier gehad en zo veel meegemaakt dat het lijkt alsof we een leven lang hebben gedeeld. Jan is degene die me gedurende het gehele proces op alle mogelijke manieren heeft gesteund. Zijn ambitie werkte aanstekelijk. Zonder zijn vertrouwen in mij had ik het waarschijnlijk een stuk zwaarder gehad.

Eigenlijk heeft iedereen waar ik de afgelopen jaren mee heb samengewerkt of gesproken zijn bijdrage geleverd. Een aantal mensen zou ik hier graag speciaal noemen.

Frits Kluytmans van de Open Universiteit ben ik veel dank verschuldigd voor de dataverzameling. Paul Boselie wil ik bedanken voor zijn bereidheid tot sparren, hij is een groot voorbeeld voor mij. Jan de Kok, tja wat had ik zonder de hulp van Jan de Kok ontmoeten? Ik denk met veel plezier terug aan de mensen die onderdeel zijn geweest van de Vakgroep Organisatie, zoals Daina, Joke, Tulay, Jos, Truus, Janneke, Ton, Ludwig, Deanne, Anne, Norman en Alice.

Zonder Sammy (Sandra) was het erg zwaar geweest. Van de gesprekken met Arnoud heb ik erg genoten. Bedankt voor jullie vriendschap, hulp en vrolijkheid. Met enkele van de studenten die ik in de loop van de jaren heb ontmoet heb ik geweldig samengewerkt, zoals Mark, Ilja en Maartje. Ik heb veel van hen geleerd.

De afleiding die het schrijven van de wortel voor de Gids voor Personeelsmanagement heeft geboden was zeer welkom (met dank aan Ton en Mariëtte). Het heeft mij veel inspiratie gegeven voor mijn onderzoek.

Wat ik vreselijk zal missen zijn de hysterische (en natuurlijk zeer leerzame) congressen. Dat ERIM dit mogelijk heeft gemaakt is geweldig!

Tegenwoordig werk ik met veel plezier bij Accenture. Een aantal van mijn collega's wil ik graag speciaal bedanken voor hun steun en inspiratie: Jeroen, AdJan, Martin, Anil, Arjen, Arjan, Susanne en Inge.

Door te leren verander je. Mijn vrienden hebben me ervoor behoed een ongelooflijke nerd te worden, met speciale dank aan Marianne, Leonore, Mariëlle, Dennis, Rob, Gerbert, Danny, Jaap, Lucie en Aaron. Met dank aan de liefde van en de liefde in mijn leven. Bedankt voor jullie steun, hulp en flexibiliteit. Ik prijs me gelukkig met zulke vrienden.

De onvoorwaardelijke steun van mijn moeder, mijn lieve zus Heriëtte en broer Colijn, Pa, Anny, Erna, Peter, Bianca, Jack, Jacques, Helga, alle nichtjes en neefjes, mijn nicht Gita, Ab-Willem en tante Annie heeft me overweldigd. Zonder hen had ik dit niet volbracht. Ik heb het getroffen!

Ik vraag me niet meer af waarom ik hieraan begonnen ben. Ik ben blij dat ik aan dit proefschrift ben begonnen. Ik ben dankbaar dat ik dit heb mogen volbrengen. Ik ben trots op hetgeen ik heb geleerd en dankbaar voor de mensen die me hierin gesteund en geïnspireerd hebben. Ik brand van nieuwsgierigheid want realiseer me dat ik zo weinig weet en er nog zo veel te leren is. Dit voelt als een mooi begin.

Tot slot: Gras groeit niet door eraan te trekken. Dank voor ieders begrip hiervoor.

Mariëlle Sonnenberg
Rotterdam, augustus 2006

CHAPTER 1	INTRODUCTION	1
1.1	Introduction	1
1.2	Research question.....	3
1.3	Empirical Data.....	5
1.4	Relevance.....	5
1.5	Overview of the chapters	6
CHAPTER 2	PSYCHOLOGICAL CONTRACT	7
2.1	Introduction	7
2.2	Defining the psychological contract	7
2.2.1	Development of the concept	10
2.2.2	Who or what represents the organization	14
2.3	Underlying theory and concepts.....	16
2.4	Fulfillment, breach and violation	21
2.5	Variables influencing the psychological contracts.....	24
2.5.1	Individual level variables	24
2.5.2	Organizational level characteristics.....	25
2.6	Conclusions	30
CHAPTER 3	HRM SIGNALS	35
3.1	Introduction	35
3.2	Defining structural signals.....	35

3.2.1	The signalling perspective: what does signalling mean?	36
3.2.2	A signalling role for HRM and organizational structure.....	39
3.2.3	Conceptual model.....	41
3.3	Domains of Human Resource Management.....	42
3.4	Models/ approaches for studying HRM.....	44
3.4.1	Universalistic approaches	46
3.4.2	Amount of HRM practices.....	46
3.4.3	The focus of HRM	47
3.4.4	Configurational approaches	53
3.4.5	Configurational approach of this study	60
3.5	Conclusion.....	65

CHAPTER 4 RESEARCH DESIGN.....69

4.1	Introduction	69
4.2	Analysis of data at multiple levels	69
4.3	Analytical strategy.....	71
4.4	Data collection method.....	74
4.5	Individual level measurement: psychological contract	76
4.6	Organizational level measurement: HRM, structure and context	80
4.6.1	Measures of organizational structure	80
4.6.2	Measurement of context.....	83
4.6.3	Measures of HRM.....	84
4.7	Control variables	90
4.9	Conclusions	91

CHAPTER 5 RESULTS.....93

5.1	Introduction	93
5.3	The empty model	96
5.4	Baseline models.....	100
5.5	Random intercept model 1.....	102
5.6	Random intercept model 2.....	105
5.7	Random intercept model 3: Configurations.....	108
5.8	General model comparisons	109
5.9	Conclusions	113

CHAPTER 6 DISCUSSION115

6.1	Introduction	115
6.2	Summary of main findings	116
6.2.1	Research model and hypotheses.....	116
6.2.2	Main results.....	120
6.3	Discussion of the findings.....	126
6.5	Strengths, limitations and suggestions for further research.....	131
6.6	Suggestions for practice	135

SAMENVATTING (SUMMARY IN DUTCH)139

REFERENCES145

APPENDIX 1: CHECK FOR RANDOM SLOPES	161
--------------------------------------------------	------------

APPENDIX 3A: MODELS WITH DEPENDENT VARIABLE PERCEIVED EMPLOYEE OBLIGATIONS	163
---------------------------------------------------------------------------------------------	------------

APPENDIX 3B: MODELS WITH DEPENDENT VARIABLE PERCEIVED OBLIGATIONS ORGANIZATION	164
-------------------------------------------------------------------------------------------------	------------

APPENDIX 4: DESCIRPTIVE STATISTICS AND CORRELATIONS OF THE MAIN VARIABLES OF INTEREST	165
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CHAPTER 1 INTRODUCTION

1.1 Introduction

What are the drivers of high performing organizations? This question is central in contemporary management research and practice (e.g. Kirby, 2005) and is important for research in Human Resource Management (HRM).

In organizational level HRM research, the relationship between HRM and organizational performance has increasingly become a matter of interest, as can be seen in the numerous articles and books on High Performance Work Systems (e.g. Appelbaum et al., 2000) and the rising interest in “HR scorecards” (e.g. Becker et al., 2001; Paauwe, 2004). However, according to authors in this field (see for instance Delery, 1998; Delaney & Huselid, 1996) we know little about the mechanisms through which HRM influences organizational performance.

Individual level HRM performance research mainly focuses on analyses of the relationship between characteristics of individual employees, their work perceptions and behavioral aspects of performance such as intention to leave the organization and employee satisfaction (e.g. Herriot & Pemberton, 1997; Rousseau, 1995/1998; Guest, 1998).

In this study we ‘bridge’ both streams of HRM research, organizational level research towards the relationship between HRM and performance and individual level research on the relationship between work perceptions and individual performance. We bridge these two streams of research by focusing our attention on the concept of the psychological contract. The psychological contract is defined as: “*an individual’s belief, shaped by the organization, regarding reciprocal obligations*”. The psychological contract consists of three aspects: perceived employee obligations; perceived employer obligations; and perceived fulfillment/ violation of employer obligations.

The concept of the psychological contract connects organizational level and individual level HRM research because of its focus on the exchange relationship between organization and individual. The psychological contract is of interest because of its effects on attitudes and behavior of organizational members.

For an organization to achieve desired performance goals, violations and fulfillment of employees' psychological contracts are important factors. We use the term violation for indicating a situation in which employees perceive the obligations of the employer as not being completely fulfilled. Violation of the psychological contract has been empirically linked to individual's attitudes and behaviors, such as for instance trust, loyalty, commitment and intention to leave (e.g. McLean Parks & Schmedeman, 1994; Robinson & Rousseau, 1994; Robinson & Morrison, 1995; Ten Brink et al., 2001).

We consider organizational practices such as HRM practices and elements of organizational structure as communicating mechanisms. We investigate if these organizational practices send signals that are relevant for employees' assessment of the degree of violation of their psychological contracts.

The psychological contract will be the factor against which we evaluate effectiveness of HRM and more general design factors as organizational structure. We investigate to what extent two approaches towards HRM (universalistic and configurational) are helpful to understand the relationship between the signals an organization sends and employee perceptions of their employment relationship.

Insight is gained into the connections between HRM, organizational structure, context factors and psychological contracts, thereby exploring the relationship between organizational and individual level elements and the process by or through which this might lead to organizational effectiveness.

1.2 Research question

The goal of this research is to gain more insight into the relationship between HRM and performance by studying the signalling effect of HRM on employees' assessment of their psychological contracts. HRM and more general design factors as organizational structure and context are seen as structural signals: *“vehicles people use to convey commitments and offer inducements for present and future behavior”*. HRM is the subset of organizational design characteristics that is most closely related to the employment relationship.

We assume that signalling exists when the organization is perceived by employees as sending signals. It thus assumes interaction between both parties as a result of the way an organization designs HRM. Signalling in this way is considered to be a characteristic of the organization that influences the attitudes and behavior of the employee (employees' assessment of degree of the degree of psychological contract violation).

The main research question is characterized as follows:

What is the signalling value of HRM for employees' assessment of the degree of violation of their psychological contracts?

In line with Beer et al. (1984) we defined HRM as *“involving all management decisions that affect the relationship between the organization and employees – its human resources”*. Based on the work of Rousseau (1989/1990/1995) we defined psychological contract as *“an individual's belief, shaped by the organization, regarding reciprocal obligations”*.

This main question raises a number of related questions that have to be answered in order to explore the relationship between organizational level HRM and individual level psychological contracts. In order to gain more clarity on the construct of the psychological contract, we first need to answer the following questions (chapter 2):

- How is the psychological contract defined?
- Which variables (at organizational and individual level) have been related to the psychological contract in previous research?

Considering the signalling effect of HRM practices on employees' perceptions of the employment relationship asks for a specific reading of our present understandings of the influence of HRM in organizations. Minimal signalling is necessary for employees to be able to build any view of their employment relationship at all. An increase in the amount of organizational information may provide richer information for the employee to build his own understanding of his employment relationship with the organization. The first approach we consider is, therefore, a universalistic approach in that regardless of its context, an increase the amount of (commitment oriented) HRM practices has a relationship with employees' assessment of their psychological contracts

Coherent organizational signalling could also be important. Alignment between different 'signals' or messages send by an organization, and alignment among HRM practices, may be important for constituting organizationally 'desired' behavior. The configurational approach focuses on alignment or fit, and is the second approach we consider in this study.

In order to study the relationship between the signalling value of HRM and psychological contracts, we need to investigate (chapter 3):

- The meaning of signalling
- Universalistic and configurational approaches towards HRM

Because our concepts of interest are situated at different levels (individual level psychological contract violation and organizational level HRM), we need theory on studying the interactions between multiple levels. Therefore, we need to gain insight into (chapter 4):

- Theory and models for analysis of data at multiple levels

Insight gained from these three streams of literature form the building blocks of our research model, investigating our main question concerning the signalling value of HRM for employees' assessment of the degree of violation of their psychological contracts (see figure 1-1).

Figure 1-1 Building blocks of this study

	Individual level	Organizational level
Subject	Psychological contract of employees	HRM (and more general design factors as structure)
Perspective	Employee	Organization/ employer
Theory/ models	Exchange theory, notions of balance and reciprocity	Signalling theory, models for studying the relationship between HRM and performance
Methodology	Multilevel modelling and analysis	

1.3 Empirical Data

Because our main focus concerns relationships between variables at two levels of analysis, on individual level psychological contract violation and on organizational level HRM, we collected data that has a nested structure and use an analytical strategy typically for handling such data (i.e. multi-level analysis). The empirical data is based on survey research derived from employers and employees within a variety of organizations. In general, survey research is aimed at exploring ‘what’ and ‘how much’ (Yin, 1994) is the relationship between the variables of interest. A standard questionnaire has been distributed among groups of employees in a variety of organizations. The questionnaire measures individual level work attitudes and perceptions of the employment relationship. Besides these questionnaires, the HRM manager of each organization characterized his/her organization on a number of predefined dimensions using a standard protocol. In total we collected data from 49 organizations and 2099 employees within these organizations.

1.4 Relevance

Both literature on organizational level HRM and performance and individual level research on the relationship between psychological contracts and employee behavior, point to the existence of a relationship between HRM and (violation of) psychological contracts of employees. Most of these indications, however, are conceptually based.

Present individual level theorizing doesn't give insight in organizational variables that influence the psychological contract, thus leaving a gap between organizational HRM theory and individual level psychological contract theory.

A major and unique strength of this study is that it combines insights on organizational level HRM with insights on individual level psychological contracts. The multi-level approach of our study is of major scientific relevance. Rousseau already argued in 1985 for the importance of building and testing multi-level models in research on organizations. Nowadays authors like Ostroff & Bowen (2000) argue that especially in the area of HRM multi-level models are needed. Furthermore, this study focuses on a diverse set of employees within a variety of organizations and should, therefore, be able to present a good indication of the employee's perceptions of their employment relationship.

The managerial relevance of this research rests in the insight we provide into ways of influencing psychological contracts. It is in the interest of managers to have a clear knowledge of which organizational activities will elicit those attitudes and behaviors necessary to achieve the organizational goals.

1.5 Overview of the chapters

In chapter 2 we investigate the concept of the psychological contract and the influence of organizational- and individual level variables on the psychological contract. In chapter 3 we provide insight into and evaluate existing literature on HRM and more general design factors (structural signals) and their relationship with psychological contract violation. We discuss approaches for studying HRM and develop our conceptual model and hypotheses in chapter 3. In chapter 4 we operationalize the conceptual model and hypotheses presented in chapter 3. We present our analytical strategy, the design of the study and our research model. In chapter 5 we present the results of our study by testing our hypotheses, leading us to answering our main research question. In chapter 6 we discuss the results of our study, and present limitations and suggestions for further research as well as the recommendations for practice.

CHAPTER 2 PSYCHOLOGICAL CONTRACT

2.1 Introduction

In this study the psychological contract is put forward as a framework for investigating the relationship between organizational variables, such as HRM, and the employment relationship. The psychological contract is defined as: “*an individual’s belief, shaped by the organization, regarding reciprocal obligations*”. The purpose of this chapter is to investigate the concept of the psychological contract and the relationship of organizational- and individual level variables with the psychological contract.

In the first section we give a brief historical overview of the development of the psychological contract until now and discuss the definition of the concept (section 2.2). Furthermore, in this section we consider the issue of who or what represents the organization, which is critical in conceptually distinguishing between the psychological contract on individual level and organizational level variables influencing this concept. In section 2.3 attention is given to underlying theory and concepts. A great deal of research has focused on the aftermath or evaluation of psychological contracts and their consequences for individual performance. Reasons for this are indications that the degree of psychological contract fulfillment, breach and violation has substantive consequences for the behavior of employees. The insights gained from this type of research will be discussed in section 2.4. Section 2.5 provides an overview of individual and organizational elements influencing the development and evaluation of the psychological contract, providing the basis for the following chapters.

2.2 Defining the psychological contract

In general, employment contracts serve to bind together individuals and organizations and regulate their behavior, making possible the achievement of organizational goals (Robinson et al., 1994).

Employment contracts aim to connect the employee with the employer or organization with regard to future contributions and inducements of the parties involved in the contract.

These contributions and inducements are partly put on paper in the written formal contract of employment, but are for the most part unwritten and implicitly held.

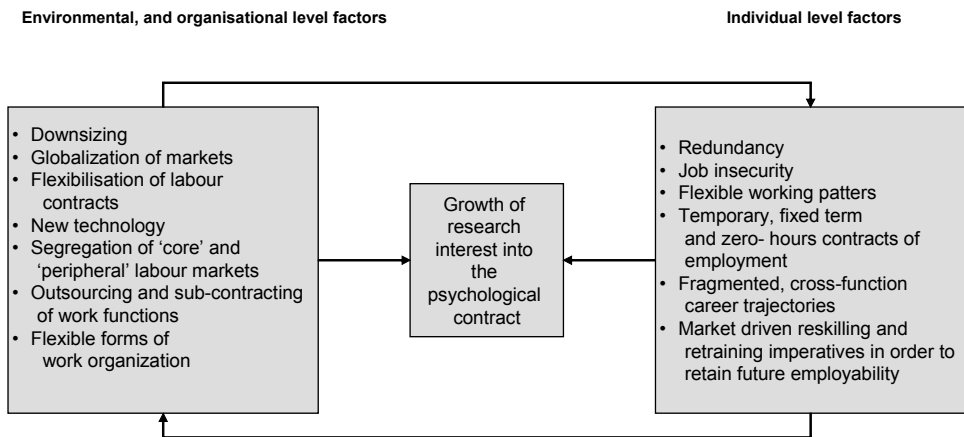
Spindler (1994) argues that “*in law, contracts create and define enforceable rights and obligations between parties who knowingly create the relationship*”. Legal and psychological contracts are both important aspects of the employment relationship. The difference between legal and psychological contracts is that legal contracts are specified, explicitly defined, in contrast to psychological contracts, which are unwritten, are held individually and which are perceptual in nature.

Researchers on the psychological contract focus their attention within the employment relationship on perceived expectations, obligations and promises regarding future inducements and contributions. The basic idea behind this kind of work is that employees develop a psychological contract with their employer based on their formal contract as well as many other formal and informal organizational signals and individual characteristics, and this formed psychological contract influences their behavior.

The psychological contract is nowadays a well-known concept for most researchers in the fields of Organizational Behavior and Human Resource Management. During the past years a relatively high amount of attention has been given to the concept of the psychological contract, with a surge of attention in the 1990's. Interest in the psychological contract started in 1960 with a publication of Argyris. In the first period (1960-1991) only a small amount of attention was paid to the subject. During the period 1994-2004 psychological contract became frequently a subject of publication, with special issues in 1994 (Human Resource Management), 1998 (Journal of Organizational Behavior) and 2002 (Gedrag & Organisatie). Interestingly, it was not until 1989 with the seminal work of Denise Rousseau that the psychological contract became a popular concept to perform research on. Commonly mentioned is that this rise in attention towards the psychological contract was due to changes in the employment relationship. According to Coyle-Shaprio et al. (2002), interest in the psychological contract emerged during, or partly as a consequence of a period of organizational restructuring and downsizing in the USA.

As a result of amongst others a rise in global competition, more intense product market competition, changes in ownership of organizations, the growing use of contingent employment, developments of technology and production techniques (e.g. Blyton & Turnbull, 1994) and the changing nature of the relationships between employers and employees. It is argued that employment relationships are evolving into less stable, more complex relationships, with a variety of contract forms for similar work (which will be partly discussed in section 2.3). Anderson & Schalk (1998) presented an overview of factors influencing the growth in psychological contract research (figure 2-2).

Figure 2-2 Factors influencing the growth in psychological contract research (Anderson & Schalk, 1998: 643)



As a result of these changes, the perception of the employment relationship became increasingly a matter of interest. Focusing on perceptions, the psychological contract has, therefore, been put forward as a framework for studying the perceptions of employment relationships (e.g. Shore & Tetrick, 1994; Herriot et al., 1997; Shore & Tetrick, 1994; Guest, 1998). There is, however, debate about the proper definition of the concept, which we will discuss in the following subsection.

2.2.1 Development of the concept

Two studies can be seen as the founding “fathers” of the psychological contract concept: the work of Argyris (1960) and the work of Levinson et al. (1962). Argyris (1960) first introduced the term psychological contract. In describing the relationship between employees and the leadership style of their foremen, he pointed at the informal culture as the important factor in the understanding of the agreement between the employees and their foremen, i.e. the psychological contract. According to Argyris (1960), the management of the employee-foreman relationship was “dominated” by the psychological contract. He defined violation of this psychological contract as the result of a situation in which the foreman behaved in contrast with the cultural norms. Argyris (1960) described the psychological contract as the perceptions by two parties of their employment relationship and as a mutual understanding on the content of these perceptions or the psychological contract.

Levinson et al. (1962) described the psychological contract as a series of mutual expectations between the organization and the employee, some of which are conscious and other unconsciously held. Levinson et al. (1962) focused at expectations having to do with psychological needs, such as growth and aggression and expectations having to do with specific aspects of the work itself, such as job security and rewards.

Both definitions assume an exchange relationship between employer (organization and/or leader) and employee, in which the expectations of both parties involved are taken into consideration.

Rousseau (1989) introduced a definition of the psychological contract from the individual’s point of view: *“An individual's belief regarding the terms and conditions of a reciprocal exchange agreement between the focal person and another party (typically between employee and employer)”*. Rousseau breaks with the work of Levinson et al. (1962) and Argyris (1960), by shifting to the individual level (instead of the relational level).

In 1990 Rousseau published an article called ‘new hire perceptions of their own and their employer's obligations: A study of psychological contracts’. In this article she formulated the following definition of psychological contract: “*an individual's beliefs regarding reciprocal obligations*”. In this definition, one could notice a shift from expectations to obligations (see also Roehling (1997) for an extensive historical overview). Rousseau's (1989/1990) definitions take into account the fact that both parties do not necessarily have to agree with regard to the terms of the psychological contract, in contrast to Argyris' (1960) ‘mutual understanding’. Instead, Rousseau considers mutuality as perceived by individual employees. Furthermore, she focuses on the conscious beliefs by employees, where Levinson et al. (1962) also consider unconscious expectations.

In 1995 Rousseau formulated the following definition of psychological contract: “*individual beliefs, shaped by the organization, regarding the terms of an exchange agreement between individuals and their organizations*”. This definition differs from the one formulated by Rousseau in 1989 and 1990, in that although the words ‘individual beliefs’ are still present in the definition, they are extended by using the new fragment ‘shaped by the organization’. This could be an indication for more emphasis on the elements that shape a psychological contract, and a narrowing of the interest towards only these elements that are manageable by an organization. Hereby she excludes the influence of personal characteristics and the (social) background of these individuals. All these Rousseau's definitions, however, imply that she sees the psychological contract as a construct at the individual level.

In contemporary literature roughly two schools can be distinguished. On the one hand the ‘Rousseau-school’ (with authors like Rousseau, Robinson, Morrison, McLean Parks, Kraatz, Greller, Guzzo, Noonan, Lewis-McClea & Taylor, Schalk), which mainly focuses on the individual employee, and, on the other hand, the ‘traditional school’ that focuses on both sides, the employer and the employee (e.g. Guest, Herriot, Pemberton, Coyle-Shapiro, Manning, Kidd).

Chapter 2 - Psychological Contract

At present there is only a relatively small group of researchers that actually examine the employers' side of the psychological contract in terms of the traditional-school definition of the concept (e.g. Coyle-Shapiro & Kessler, 2000; Guest & Conway, 2002; Coyle-Shapiro, 2001).

Lewis-McClea and Taylor (1998:3) argue that *“only by studying the interactions between these two parties, and the way these interactions evolve over time, can we begin to understand the essence of the employment exchange”*. Therefore, one contribution of including the employer's perspective is that it provides a more complete picture by allowing an investigation of the actions and reactions of both parties to the exchange.

When studying this matter, it becomes important to establish the boundaries of the psychological contract, and consider the question if the psychological contract resides solely in the individual or that both the employer and the individual are part of the psychological contract. Furthermore, the question who or what represents the organization or the employer's perspective is important to gain insight into. There is a vividly debate on this matter, which we will discuss in more detail in subsection 2.2.2.

A variety of elements have been used in definitions of the psychological contract, ranging from expectations, beliefs, promises, obligations and perceptions (Conway, 1996; Guest, 1998). According to Rousseau (1990:309), psychological contracts differ from the more general concept of expectations in that contracts are promissory and reciprocal, offering a commitment to some behavior on the part of the employee, in return for some action on the part of the employer or the other way around (as can be captured in the words 'reciprocal promised based obligations').

This focus on promised-based obligations is very typical of Rousseau's later conceptualizations. Obligations can be defined as *“beliefs held by an employee or employer, that each is bound by promise or debt to an action or course of action in relation to the other party”* (Robinson, Kraatz & Rousseau, 1994).

According to most researchers within the Rousseau line of reasoning, if a perceived obligation is not accompanied by the belief that a promise has been conveyed (e.g. if the perceived obligation is based for instance on past experience in other employment relationships) then it falls outside the psychological contract (McLean Parks & Schmedemann, 1994; Rousseau & Greller, 1994; Shore & Tetrick, 1994).

Robinson (1996) found in her study support for the use of obligations instead of expectations. She provides us with indications that fulfillment of psychological contract obligations contributes more substantively to the prediction of outcome variables as trust, satisfaction and commitment than expectations do (which are non-promissory in nature).

Subsequently, only those expectations that stem from perceived promises made by the employer are considered by most researchers as part of the psychological contract (in line with Rousseau). Although promises regarding future courses of action express intent, it is not what the promise maker intends but what the receiver perceives (Rousseau, 1995). Communication is thus the essence of a promise, promises are perceptions of what was sent and meant (Rousseau, 1995: 27).

So a lot of debate in this field is due to the divergent use of definitions of the psychological contract. The most frequently used definitions are the definitions of Rousseau (1989/1990/1995). According to Rousseau (1989) individuals can have psychological contracts and organizations cannot: organizations provide the context in which individuals create psychological contracts. In order to be able to conceptually distinguish between the psychological contract on individual level and organizational level variables influencing this concept (which could be seen as the employer's perspective), we will study the psychological contract in line with the conceptualizations of Rousseau.

We define the psychological contract as: *“an individual's belief, shaped by the organization, regarding reciprocal obligations”*. The psychological contract consists of three elements: perceived employee obligations, perceived employer (organization's) obligations and perceived fulfillment/violation of employer obligations (Robinson et al., 1994; Schalk & Freese, 1997).

In the following subsection we provide more insight into the matter of who or what represents the organization in the light of the psychological contract debate.

2.2.2 Who or what represents the organization

As stated before, there is a lot of debate going on regarding the issue of the employer's or organization's perspective¹. Researchers suggested several contract makers as representatives of the organizations' point of view. One way of capturing the organization's perspective is as Coyle-Shapiro (2001) suggested through the lens of the manager. Coyle-Shapiro & Kessler (2002) for instance, examined the relationship between employer and employee, in which they suggest that the organization's perspective can best be represented by a higher level manager.

Guest & Conway (2000), however, suggest that not all managers can be seen as representing the organization's point of view in the eyes of employees: line managers are not perceived (by both managers as well as employees) as representing the organization, unless the line manager is a senior manager. For this reason Guest & Conway (2002) used in their study senior managers to represent the organization's point of view. In the qualitative part of their research (interviews in four organization with 80 managers and staff at different levels) they found that senior managers were seen by the interviewed as agents representing the organization. But, then again, there were different views of what defined seniority, which seemed to depend on the seniority of the respondent, *"a junior staff member might identify a head of department in this role, while more senior staff, themselves in management positions, were more likely to identify someone at board level."*

According to Rousseau (1995), the organizational part of the psychological contract may consist of multiple agents (as owner, top management, co-worker, managers etc). Especially in large organizations it seems difficult for employees to interpret who or what represents the employers' perspective. Rousseau (1995) makes the distinction between primary and secondary contract makers (see figure 2-3).

¹ In this study, employer and organization are used interchangeable

Primary contract makers are people. Secondary contract makers are ‘*structural signals: vehicles people use to convey commitments and offer inducements for present and future behavior*’. In this line of reasoning elements of organizational design (including structure and HRM) can be considered as ‘contract makers’, or representing the organization’s point of view.

Figure 2-3 Contract makers (Rousseau, 1995:63)

Human contract makers (primary contract makers)	Administrative contract makers (secondary contract makers)
Through interaction <ul style="list-style-type: none"> • Recruiters • Managers • Co-workers • Mentors 	Structural signals <ul style="list-style-type: none"> • Compensation • Benefits • Career path • Performance review • Training • Personnel manuals
Through observation <ul style="list-style-type: none"> • Managers • Co-workers • Top management 	

Following this model of Rousseau (1995), considering the perceptions of managers as representing the organization’s point of view is indeed problematic, since they (whatever level) do not necessarily represent the whole picture of human contract makers: recruiters, coworkers and mentors also interact with employees. Based on this model, several elements in the organization can influence the psychological contract. Since it might be problematic to capture all these elements or contract-makers at once, we have to decide on the focus of our study.

Basically, this model of Rousseau (1995) suggests that employees are involved in at least two exchanges. An organization can act through its agents but also through its processes, systems and structure. In this sense, HRM has been regularly put forward as a key aspect of the organization. Structural signals (Rousseau, 1995) may provide continuity regardless of the variety of line and senior managers and HRM people acting as specific agents (Robinson & Morrison, 1995: 290).

Support for this can be found in the work of Levinson (1965), who argues that people project human qualities upon an organization, and relate to organizations in such a way as if it had human qualities. He further argues that as a result of organizational policies, similarity in behavior by different agents of the organization at different times and places will be established. All together these insights clearly provide us with the argument for investigating the influence of organizational features on employees instead of only those of specific agents.

This model of Rousseau (1995), and our focus on structural signals, invites a more in depth examination of the influence of organizational level elements such as organizational structure and HRM on the psychological contract. In our definition of the psychological contract, these organizational level aspects (which can be seen as part of the employers' perspective) are not included in the psychological contract itself, but are expected to affect the individual level psychological contract.

To study the relationship between organizational level elements or structural signals and the psychological contract, we need to gain insight into the dynamics of the exchange relationship between the organization and its employees. We thus need theoretical foundations for studying the psychological contract and its relationship with these organizational-level elements. This will be the focus of the following section.

2.3 Underlying theory and concepts

Exchange (Blau, 1964), reciprocity (Gouldner, 1960) and balance (Barksdale & Shore, 1995) are central concepts in the literature on employee-organization contracts (Rousseau, 1989/ 1990; Rousseau and McLean Parks, 1993). These concepts and the relationship with the previous discussions on the psychological contract will be shortly discussed.

Exchange theory provides the basic foundation of the psychological contract. Two sorts of exchanges can be distinguished, economic and social. Pure economic exchange exists in the case where the employer offers short-term, purely economic inducements in exchange for well-specified contributions by the employee (Tsui, et al., 1997).

According to Tsui et al. (1997) *“At least for job complexity and external adaptation reasons, the employer may find it advantageous to leave some obligations unspecified and to treat the employment relationship as a combination of economic and social exchange, rather than as a purely economic exchange”*. Blau (1964) reasons that, although the formal or legal relationship in employment is economically driven a social element to such relationships typically evolves, since each party has a perception of the contract that they have with each other. Such perceptions can be derived from direct or indirect communication with the other party (primary and secondary contract makers in Rousseau’s terminology).

Based on theory of social and economic exchange of Blau (1965), researchers on the psychological contract make a distinction between transactional and relational psychological contracts. Transactional psychological contracts are based on specific, close-ended, easily definable and primarily economic transactions (focusing mainly on short term and monetizable exchanges). Relational contracts consist of open-ended relationships involving considerable investment by both employees and employers (social exchange): *“Relational contracts are more developmental and value-laden in nature”* (Rousseau & Parks, 1993).

The transactional/relational dimension of psychological contract has been studied foremost in context of the interest in the ‘changing employment relationship’ (see figure 2-2). Anderson and Schalk (1998) for instance present an overview of past and emergent forms of the ‘typical’ working relationship (table 2-1), representing a shift from relational towards transactional elements in contracts.

Table 2-1 Past and emergent forms of working relationships (Anderson & Schalk, 1998)

Characteristic	Past form	Emergent form
Focus	Security, continuity, loyalty	Exchange, future employability
Format	Structured, predictable, stable	Unstructured, flexible, open to (re)negotiation
Underlying basis	Tradition, fairness, social justice, socio-economic class	Market forces, saleable, abilities and skills, added value
Employer's responsibilities	Continuity, job security, training, career prospects	Equitable(as perceived), reward for added value
Employee's responsibilities	Loyalty, attendance, satisfactory performance, compliance with authority	Entrapreneurship, Innovation, enacting changes to improve performance, excellent performance
Contractual relations	Formalized, mostly via trade union or collective representation	Individual's responsibility to barter for their services (internally or externally)
Career management	Organization's responsibility, in-spiraling careers planned and facilitated through personnel department input	Individual's responsibility, out-spiraling careers by personal reskilling and retraining

Authors like Anderson & Schalk (1998) suggest that employment relationships are increasingly based upon the possibilities of both parties in the market place and are getting more transactional in nature. Herriot & Pemberton (1995) argue that due to a tendency to pursue cost competitiveness, employers have generally become less committed to a relational employment relationship.

In general it seems to be very difficult to (conceptually or empirically) come up with psychological contracts that are only transactional or relational in essence and also other differentiations between types of contracts seem to confirm the lack of support for a changing relationship between employer and employee in general. The distinction between transactional and relational obligations seems to be not so clearly cut, as can be seen in the work of amongst others, Huiskamp & Schalk (2002), Guest & Conway (1997) and Guest et al. (1996), who did not find clear support for the transition from relational towards transaction psychological contract: *'the traditional psychological contract built around job security and career is still alive and surprisingly well'*. Furthermore, the study of Van den Brande et al. (2002) towards the state of the psychological contract in Belgium provides indication for a limitation of this transition towards emergent forms of employment relationships to a relatively small group of highly educated and young professionals.

Guzzo & Noonan (1994) suggest that psychological contracts can have both transactional and relational qualities, which can influence each other. Contracts have been found that combine performance requirement of a transactional nature with long-term investments between employee and employer characteristic of relational agreements (Rousseau, 1995; Rousseau & Tijoriwala, 1996).

There seems to be not much evidence for the distinction between transactional and relational contracts, or based on this distinction, for a new employment contract in which there is supposed to be a shift from more relational elements to transactional elements.

A related aspect of the employment relationship that is considered to be of major importance is (perceived) balance. In general the assumption is that employees feel obliged to reciprocate in order to create (perceived) balance in the exchange with the organization.

Barksdale & Shore (1995) present a typology of exchange relationships based on perceived balance, in which the level of obligation and degree of balance is taken into account (see figure 2-5). To develop their typology they performed a clustering procedure, in which individuals (327 part-time MBA students USA) were assigned to one of four groups. They found that the mutual high and low obligations groups were most commonly found, which gives support for the norm of reciprocity (Gouldner, 1960) and the notions of Blau (1965) regarding social exchange; in that people seek balance in exchange relationships and actions of one party thus have consequences for the actions of the other.

According to Blau (1964), balance in a relationship is expected as well as preferred. There is balance when the employee perceives the employment relationship as consisting of high levels or low levels of employee and employer obligations. According to Shore & Barksdale (1998) although two forms of unbalance can be present (employee under and over obligation), this might be a temporary unstable situation. Robinson et al. (1994), provide support for this situation. Based on their longitudinal study, they found that individuals may perceive some sort of unbalance when just hired (i.e. employee over-obligation).

Figure 2-4 Typology Barksdale & Shore (1998)

		Employer obligations	
		High	Moderate to low
Employee obligations	High	Mutual high obligations (N=146)	Employee over obligation (N=39)
	Moderate to low	Employee under-obligation (N=11)	Mutual low obligations (N=119)

Over time, employees felt that the obligations towards them increased while their own obligations decreased. According to Barksdale & Shore (1995) an explanation of the unbalanced types could be that individuals tend to overestimate their own contributions and underestimate the contributions of the other part. Employees can, therefore, feel they owe the organization less, and the organization owes them more. This typology of Barksdale & Shore provides us with insights in the relationship between perceived employee and employer obligations.

In studying the psychological contract (economic and social) exchange, reciprocity and balance are central phenomena. We discussed two ways of categorizing the psychological contract (1) transactional and relational psychological contracts and (2) degree of balance of psychological contracts. Although the most frequently used typology is the transactional/relational one, as a consequence of the lack of empirical support, there has been considerably critique on this distinction. Exchange theory suggests that the relationship between an individual and organization is a result of mutual influence. In order to study this interaction between the organization and the employee, we will use insights derived from exchange theory, in that employees seek balance in their employment relationship and reciprocate according to their perception of the degree of balance.

Psychological contract obligations reflect future contributions and thus may or may not be fulfilled and are thus contingent upon the perceived behavior of the other party. When employees perceive that the obligations of the organization compared to their own contributions are not fulfilled, they will reciprocate by adjusting their attitudes and behavior.

Imbalance in the psychological contract has frequently been operationalized as violation or breach of the contract. In the following section we evaluate previous research investigating the impact of psychological contract violations on employee behavior.

2.4 Fulfillment, breach and violation

Evaluation of the psychological contract includes assessments of contract fulfillment, breach and violation. There exists psychological contract fulfillment when the employer or organization is perceived of keeping its contract terms. When an employee perceives the organization has failed to fulfill one or more of the perceived obligations of the psychological contract, there is a breach of contract. If there is a perceived breach of the psychological contract and the breach is significant, it constitutes a violation (Morrison & Robinson, 1997: 230): *“Perceived breach refers to the cognition that one’s organization has failed to meet one or more obligations within one’s psychological contract in a manner commensurate with one’s contributions. Violation is the emotional and affective state that may, under certain conditions, follow from the belief that one’s organization has failed to adequately maintain the psychological contract”*.

According to these authors, breach does not necessarily have to lead to violation, but this depends for instance on the value of the perceived breach item, the context surrounding the breach and the reason for the breach. Insight into the degree of fulfillment, breach and violation of the psychological contract and their causes is important in light of their different consequences for employee behavior. Researchers found a relationship between psychological contract breach and civic virtue, intentions to remain, intention to turnover and psychological withdrawal (Robinson, 1996; Bunderson, 2001; Kickul, Lester & Finkl, 2002; Lo & Aryee, 2003).

Furthermore, research indicated a relationship between psychological contract violation and neglect, intention to quit, satisfaction, organizational citizenship behavior, turnover, intention to remain, loyalty and voice (Robinson & Rousseau, 1994; Robinson & Wolfe Morrison, 1995; Lewis-McClea & Taylor, 1996; Turnley & Feldman, 1998/1999/2000; De Witte & Van Hecke, 2002; Tekleab & Taylor, 2003).

Prior research has come up with somewhat inconsistent results regarding the extent to how extensive the issue of breach/violation is, or how many employees experienced psychological contract violation (Turnley & Feldman, 1999b). Robinson & Rousseau (1994) for instance reported that approximately 55 % of a sample of MBA graduates indicated violation within the first two years of employment. Some researchers acknowledge that violations are quite common in today's workplace. In the study of Robinson & Rousseau (1994), violation was conceptualized as perceived having to fulfilled less than was promised on at least one element of the psychological contract, which is in other studies considered as perceived breach.

Turnley & Feldman (1998) reported that approximately 25 % of their respondents reported violation, which is substantive lower. These results might have been influenced by the use of different measures, or operationalizations of psychological contract violation. First of all, not all researchers make this distinction between breach and violation this strict, and label situations of breach (failed to fulfill one or more obligations) as violations.

Regarding the measurement of violation or breach, Turnley & Feldman (1998) have asked the overall extent to which the organization has kept its promises and obligations. Respondents might, in that case, be more positive, indicating the influence of the measurement used. An example of such a measurement of violation is the following question: *“overall, how well has the organization fulfilled the commitments that were made to you when you were hired?”* (Rousseau, 1994). Furthermore, Turnley & Feldman (2002) argue that when an employer is perceived as over-fulfilling its obligations (i.e. more than perceived to be promised), this could as well be perceived as violation, although there is no substantive research on this matter.

Fulfillment and violation are negatively related, but are not by definition the opposite of each other (Rousseau & Tijoriwala, 1998). Employees can experience some sense of violation, while giving the employer high marks on contract fulfillment overall. According to Rousseau (1989), psychological contracts are best understood when they are violated.

This provides one of the reasons that it might be more interesting for researchers to study breach and violation, instead of fulfillment. Maybe psychological contracts are not considered that important till they are violated or breach occurs, which can also be related to insights derived from motivational theories like the distinction between hygiene factors and motivators of Herzberg et al. (1959). It might be the case that psychological contracts operate more like a hygiene factor, in that when a contract is not perceived to be fulfilled, it is in some way unbalanced and it will, therefore, become a de-motivator instead of a hygiene factor, with all subsequent consequences. As suggested before, individuals will take actions to rebalance the employment relationship, and one way to do this is to reduce contributions towards the organization.

In summary, researchers focus mainly on violation and breach. A reason for this is that as Robinson & Rousseau (1994) note, psychological contract breach and violation are relatively common, but can have big consequences on employee behavior. The distinction between breach and violation is not always applied. Because psychological contracts are best understood when they are breached or violated this will be the main focus of our study. *We will use the terms breach and violation both for indicating a situation in which employees perceive the obligations of the employer as not being completely fulfilled.*

To capture the conditions under which psychological contract violation arise, we will review existing work studying the relationship between individual level as well as organizational level variables and the psychological contract (section 2.5).

2.5 Variables influencing the psychological contracts

Individuals may perceive that promises were made based on their own interpretation of explicit or implicit information. Contract makers may not even be aware of the other party's contract terms, let alone agree to them (Lewis-McClea & Taylor, 1998). As discussed before, individual behavior is to a certain degree influenced by the psychological contract that is perceived promises, that is communication of future intent.

According to Rousseau (1995: 34), a series of organizational and individual processes affect the creation and evaluation of the psychological contract. Since we are interested in understanding which factors influence the formation and evaluation of the psychological contract, in this section we discuss empirical and conceptual findings on individual level and organizational level variables and their relationship with the psychological contract.

Because our main focus is on organizational level variables, we limit our discussion of individual level variables. We conclude by providing a table (2-2) with an overview of the various variables influencing the development and evaluation of psychological contracts, as mentioned (based on conceptually and empirically established relations) in existing literature. Although this overview has not the pretension of being complete, frequently mentioned variables associated with the psychological contract are presented, and this provides us with a basis of empirically studying the psychological contract.

2.5.1 Individual level variables

Existing empirical research provides us with indications of an influence of the employees' experience and initial level of trust in an employer (Robinson, 1996), past experiences (Grant, 1999; Rousseau, 1995); personality (Orvis & Dudley, 2002); contract status (Coyle-Shapiro & Kessler); careerism (Robison & Rousseau, 1994); and age (Turnley & Feldman, 1999) on the psychological contract.

Turnley & Feldman (1999b) reason in their conceptual article on psychological contract violation, that there might be differences across groups of employees in terms of what is considered as violation. Age for example: younger employees are less likely to expect spending their whole careers within one organization compared to older workers and are, therefore expected to respond less strong to violation when there is downsizing.

Furthermore, a lot of studies limit their analysis to fulltime-employees (e.g. Robinson & Rousseau, 1994; Robinson, 1996). A reason for this is that part-time workers may have a different view of their psychological contract because of their contract's focus on flexibility and another way of identification with the organization.

The findings of the study of Coyle-Shapiro & Kessler (1999) towards contingent versus non-contingent workers, suggest that contract status plays an important role in how individuals view the exchange relationship and how they respond to the inducement they receive from that relationship. As a result of the fact that contingent employees spent less time in an organization, they might have lesser knowledge about the organization functions and have greater tolerance for organizational policies than permanent employees (Coyle-Shapiro & Kessler 1999).

Empirical literature thus provides us with indications of a relation between specific individual characteristics and psychological contracts (for an extended overview, see table 2-2). In the following subsection, we focus on the relationship between organizational level elements and the psychological contract.

2.5.2 Organizational level characteristics

Although individual characteristics influence the psychological contract, psychological contracts develop in interactions between individuals and organization (Herriot & Pemberton, 1996; Westwood et al., 2001). Research also provides us with (mostly theoretical) indications that organizational structure and especially HRM are important sources of interaction with employees, and, therefore, influence psychological contract formation and evaluation.

Chapter 2 - Psychological Contract

Human Resource/personnel departments of organizations through their policies, practices and actions, are in front line of employment relations and are, therefore, considered to be particularly instrumental in the determination of psychological contracts (Rousseau & Greller, 1994; Rousseau, 1995; Westwood et al., 2001; Koene & Van Riemsdijk, 2005).

According to Rousseau (1995) events expressing plans for the future, signalling future inducements and contributions often occur during personnel actions (hiring, socialization, promotion, and development activities, which can be part of the activities of HRM departments) or during organizational changes (e.g. downsizing, restructuring). Rousseau & Greller (1994) suggest that one of the roles of HRM should be the creation and maintenance of the psychological contract between organizations and their employees. They state that HRM practices convey promises of future intent in exchange for contributions of employees, thus influence the forming and evaluation of the psychological contract. In line with this, they reason that each HRM practice represents a choice by the organization about what they expect from its employees and what the employees can expect in return.

According to Rousseau (2001), promises are inherent in day-to-day HRM practices (Rousseau & Greller, 2001). HRM policy and practices thus (should) have a major impact on the shaping and evaluation of employee and employer obligations (Rousseau, 1995: 162; Grant, 1999).

Robinson & Morrison (2000) discuss the importance of the recruitment process in the development of the psychological contract and Rousseau (1995) argues that (amongst others) the performance appraisal process provides an important moment for communicating the psychological contract. HRM practices like recruitment and performance appraisal are thus considered to be sending messages regarding the skills and competencies that the organization expects from its employees, but also signal what the employees can expect or are promised in return.

HRM practices are seen as communicating the nature of effectiveness the organization expects from its employees (Sparrow, 1998), “*One of the most powerful messages sent through these human resource processes has to do with the nature of effectiveness*”.

Guzzo & Noonan (1994) also conceptually relate human resource practices with the psychological contract. They consider HRM practices as *communications mechanisms*, and are interested in how these messages translate into attitudinal and behavioral outcomes. They suggest that much of the information for psychological contract formation and also for subsequent violation stem from the HRM practices of an organization. HRM practices send signals that are interpreted by employees, and are relevant to their assessment of the fulfillment of the psychological contract. In other words, they state that HRM practices have communicative value.

Rousseau & Wade-Benzoni (1994) make an argument why business strategy, HRM practices and psychological contracts are related. They also considered HRM practices as major determinants of employees’ psychological contract and developed a conceptual framework for understanding these relationships. Based on the work of Miles & Snow (1984), who distinguish between various strategic positions (defenders, prospectors, analyzers, responsive) they consider related choices in the HRM Practices (make or buy) and subsequent psychological contracts (transactional/ relational/ balanced). As an example of their line of reasoning, defenders focus their strategy at maintaining their markets share; HRM practices should in that case be “make oriented” (e.g. focus on socialization, formal career paths in which employees can work their way up); and as a result the psychological contracts of employees can be typologized as relational.

HRM practices thus shape the behavior of employees. Rousseau & Wade-Benzoni (1994) see HRM practices as an important mechanism for implementing the organizational strategy. Based on this research, they suggest organizations to align their HRM practices with their business strategy to avoid sending mixed messages to employees.

Chapter 2 - Psychological Contract

Guest & Conway (2002) empirically investigated the relationship between organizational variables as organizational communication and HRM and the psychological contract. The results of a survey of 1306 senior UK managers show amongst others a positive relationship between organizational size and sector and psychological contract breach. Larger organizations and those in the public sector were associated with more breaches of the psychological contract. Furthermore, they found a negative significant association between the number of HRM practices and several communication mechanisms (job-, top down-, recruitment,-) and psychological contract breach.

Robinson & Morrison (2000) in discussing causes of contract breach, provide us with more indications for the relationship between organizational features and psychological contract breach. According to them, when the process of socialization in organizations is fairly formalized or structured in nature, they expect new employees to form a set of beliefs and assumptions that is similar to those held by agents of the organization, which implies congruence and less potential for breach of psychological contract.

Huiskamp & Schalk (2002) found some empirical support that psychological contracts are at least partly context specific; they found differences in psychological contracts between employees working in organizations in different sectors. Further indications for a relation between contextual elements and the psychological contract can be found in the research of Janssens et al. (2003). In their research towards types of psychological contracts in Belgium, Janssens et al. (2003) empirically distinguish between six types of psychological contracts which were associated with the specific sector and size of the organizations in which employees were employed.

Rousseau (2001) argues that employees are likely to interpret promises similar in settings characterized by mutually reinforcing messages. Convergent human resource practices increase the likelihood for similar elements of psychological contracts. She defines human resource practices as structural signals regarding the organizations' intentions towards their employees (Rousseau & Greller, 1994; Rousseau, 2001; see also figure 2-3). Rousseau (2001) concludes that in line with the work of McDuffie (1995),

structural signals derived from human resource practices tend to send more coherent signals when bundles of practices mutually reinforce each other. *“Lack of integration or alignment between HR practices and between HR and business strategies often signals problems from the perspective of managing the individual’s psychological contract because they might not send consistent messages to employees”*(Rousseau & Wade-Benzoni, 1994). Rousseau & Greller (1994) even go a step further in suggesting that a contract based on mixed messages would not be a very efficient contract.

In general, Rousseau (2001) acknowledges the fact that less attention has been given to promises implied by management actions or human resource policies *“we need to understand more about whether it is the practices themselves, or other signals that accompany them (e.g. the co-occurrence of sets of practices such as training and follow-up performance evaluations) that shape interpretations”*.

Summarizing, psychological contracts can develop from the interaction of the individual with his or her organizational environment through several means, including HRM practices (Rousseau & McLean Parks, 1993; Rousseau & Greller, 1994). Although contracts tend to be unique to each individual, organizational variables as the particular HRM design, the particular sector and size of the organization, influence the development and evaluation of psychological contracts through the sort of message or ‘signal’ it sends to employees. Furthermore, consistency between the messages send by organizations seems important in terms of fulfillment of psychological contracts. Authors like Guzzo & Noonan (1994), Coyle-Shapiro (2001) and Rousseau (2001), acknowledge the fact that more research is needed on the relationship between organizational variables, such as specific HRM practices or bundles of practices and the psychological contract. In table 2-2 we provide an overview of the various elements influencing the psychological contract, as mentioned in existing literature.

2.6 Conclusions

The psychological contract will be the lens through which we study the organization (for instance in terms of HRM). In line with the conceptualization of Rousseau (1989/1990/1995), we defined the psychological contract as: *“an individual’s belief, shaped by the organization, regarding reciprocal obligations”*.

Defining features of the psychological contract in this study are:

- The psychological contract is a concept at the individual level and considers individual or idiosyncratic perceptions regarding the employment relationship
- Psychological contracts are formed upon perceived obligations
- They are held by individuals with respect to the organization
- The psychological contract is shaped and can be managed by the organization
- The psychological contract consists of three aspects, perceived employee obligations, perceived employer obligations and perceived fulfillment/ violation of employer obligations
- These three aspects are inherently related to each other

Underlying theory and concepts in research towards the psychological contract are (social and economic) exchange, balance and reciprocity. Based on insights derived from exchange theory and related concepts of balance and reciprocity, we assume that when employees perceive that the obligations of the organization compared to their own contributions are not fulfilled, they will reciprocate by adjusting their attitudes and behaviors. Psychological contracts are thus contingent upon the perceived behavior of the other party. Because of reported negative effects of not completely fulfilled psychological contracts, on individual attitudes and behavior, our main focus is on breach/violation of the psychological contract. We will use the terms breach and violation both for indicating a situation in which employees perceive the obligations of the employer as not being completely fulfilled.

Research on the psychological contract has mainly focused on individual level analyses of work perceptions of individual employees. In this study we are interested foremost in organizational level elements influencing the psychological contract.

Because of the in previous research reported negative behavioral effects of psychological contract violation on individual performance, it is interesting to investigate the influence of organizational level variables on the psychological contract. There are only a few empirical studies (e.g. Guest & Conway, 2002) which consider the relationship between organizational level variables and the psychological contract, although many authors provide indications for this relationship in more conceptual work.

HRM has been regularly put forward as a key organizational level element influencing the development and evaluation of the psychological contract. The outcomes of these previous studies ask for further studying this relationship. This could be done well by using the definition of Rousseau, separating the employer side from the psychological contract (the employee side), in studying the influence of organizational level elements as HRM on the psychological contract, with the assumption that these elements (which can be seen as part of the employers' perspective) are, by this definition, not included in the psychological contract itself.

In line with Rousseau (1995) HRM can be seen as part of the so-called secondary contract makers, or "structural signals: vehicles people use to convey commitments and offer inducements for present and future behavior".

From this perspective, organizational practices (as HRM practices and elements of organizational structure) can be seen as communicating mechanisms which are relevant for employees' assessment of the degree of violation of their psychological contracts. These practices are expected to have an optimal influence on psychological contracts when the practices promote a coherent organizational signal. Alignment between different 'signals' or messages sent by an organization, and alignment among organizational practices can, in light of the psychological contract literature, be seen as important for constituting organizationally 'desired' behavior.

In the following chapter we will gain more insight into the conceptualization of structural signals and present our conceptual model and hypotheses for studying the relationship between these structural signals and the psychological contract.

Table 2-2 Overview of variables associated with the psychological contract

	Individual level elements	Organizational level elements
Empirical	Age (Robinson, 1996; Turnley & Feldman, 1999; Janssens et al. 2003)	Sector (Guest & Conway, 2002; Huiskamp & Schalk, 2002; Janssens et al. 2003)
	Seniority (Janssens et al. 2003; Guest & Conway, 2002)	Size (Guest & Conway, 2002; Janssens et al. 2003)
	Level of education (Janssens et al. 2003)	Number of HR practices (Guest & Conway, 2002)
	Trade union membership (Janssens et al. 2003)	
	Gender (Ten Brink et al. 2001)	
	Careerism (Robison & Rousseau, 1994)	
	Personality (Orvis & Dudley, 2002)	
	Wage (Janssens et al. 2003)	
	Operational/ management position Janssens et al. 2003)	
	Level of experience in organization (Robinson, 1996),	
	Part-time/fulltime (Ten Brink et al. 2001; Conway & Briner, 2002; Coyle-Shapiro & Kessler)	
Conceptual		Structural signals: compensation/benefits/career path/performance review/ training/ personnel manuals (Rousseau, 1995)
		Personnel actions: hiring, socialization, promotion, and development activities (Rousseau, 1995)
		Business, political and market environments; organizational structure and the balance of power (Herriot & Pemberton, 1996)
		Recruitment process (Robinson & Morrison, 2000)
		HRM (Sparrow, 1998; Grant, 1999; Westwood et al. 2001; Rousseau & Greller, 1994; Guzzo & Noonan ,1994; Rousseau & Wade-Benzoni,1994)
		Formalization of the socialization process (Robinson & Morrison, 2000)
		Goal of organization (Farmer & Fedor, 1999)
		Sector and size (Rousseau, 1995)
		Consistency between HRM practices and its organizational context: (e.g. Rousseau, 2001 ; Rousseau & Wade-Benzoni, 1994; Rousseau & Greller, 1994)

CHAPTER 3 HRM SIGNALS

3.1 Introduction

In the previous chapter (mostly derived conceptually) indications were found of relationships between organizational level elements and the content and evaluation of the psychological contract. An important role was predicted for HRM factors but also the more general design factors that have a less direct relationship with the (perception of the) employment relationship (such as age and size of the organization) where considered as related with the psychological contract (see table 2-2). Furthermore, in this kind of literature attention has been paid to the importance of coherence between the various organizational practices or the so-called ‘structural signals’ (Rousseau, 1995/2001).

The aim of this chapter is to provide insight into and evaluate existing literature on HRM and more general design factors (structural signals) and their relationship with psychological contract violation. Furthermore, we combine these insights into a conceptual model and hypotheses. In the first section, we discuss the concepts of signal(ling), structure and structural signals (section 3.2) and present our basic conceptual model. In order to capture the scope of the field of HRM and the range of activities HRM can pay attention to (which can all have their signalling effect), we discuss domains or areas which can be considered to be part of HRM (section 3.3). Within the field of HRM a distinction can be made in various approaches of studying HRM, universalistic approaches versus configurational approaches. These approaches are expected to have different signalling effects in terms of psychological contract violation. We discuss these approaches and develop our hypotheses in section 3.4.

3.2 Defining structural signals

In this study our interest is in the signalling effect of HRM and more general design factors (as organizational structure) on the psychological contract of employees within organizations. As defined in the previous chapter on psychological contracts *‘structural signals are vehicles people use to convey commitments and offer inducements for present and future behavior’* (Rousseau, 1995).

There are two concepts in this definition that we discuss in this section, namely the concept of signal(ling) and the concept of structure. We clarify in short the origins of the concept of signalling and after that discuss the signalling role of HRM.

3.2.1 The signalling perspective: what does signalling mean?

Signalling models are used in a variety of research areas. In International Economics for instance, signalling is considered as an intervention strategy by a central bank for influencing the market's view of the future (e.g. Krugman & Obstfeld, 1994). Furthermore, signalling approaches can be found in the area of Marketing in which signalling is considered as an organization's strategic behavior in signalling private information to customers and competitors.

Signalling approaches are also common in Micro-economic Labor Relations, in which signalling is used to explain the bonding or the (establishment) of a relationship between an organization and its employees in the labor market (Spence, 1973). Because in this study we are interested in the relationship between organizations and employees (in terms of the psychological contract) we will elaborate on this last stream of research.

Spence (1973) discusses signalling in labor markets where as a result of information asymmetry it is difficult for organizations to establish the quality or worth of employees. Even though over time an employer can gain better information on the quality of employees, at the time of hiring in particular, lack of information on the quality of an employee for the organization can become a problem. Spence (1973) argues that hiring is an investment decision because the capabilities of the person are not known beforehand, which makes the decision to hire a person an uncertain decision.

Spence (1973: 357) uses the term *signals* for “*observable characteristics attached to the individual that are subject to manipulation*”. Age for instance is not considered to be a signal because although age changes, that fact is not at the discretion of the individual. Education on the other hand, can be considered as a signal.

Signals are assumed to be potentially open for manipulation even though there are costs associated with this, considering the fact that education is costly. Spence further reasons that individuals will decide to invest in education when there is sufficient return, and thus will only invest in education when the signalling *costs* of this do not exceed the return (for instance wage). This provides a reason why degrees are valued by employers since they provide a signal with regard to the quality of the employee.

Spence develops a model in which he distinguishes between two types of workers: workers that are highly productive and workers at a much lower level of productivity. The first group is able to get education at lower cost than the second group. The signalling equilibrium according to Spence exists in that higher productivity workers will seek and find more training opportunities than lower productivity employees and as a result of this process education signals quality of an employee. Organizations will prefer to hire and might offer higher wages to employees with higher level of education because it provides an indication of their level of productivity. Seen this way education can be a signal for the productivity quality of workers.

Spence acknowledges that just as organizations receive less than perfect information from applicants so do the applicants receive less than perfect information on their future employer. Following this line of reasoning, the recruitment policy of an organization can be considered as a signal concerning the qualities of an organization in the eyes of an applicant. The cost associated with the recruitment policy can be enormous compared to the returns when employees do not perceive these signals as intended.

In signalling models one party sends signals that the other party interprets, thereby assuming an interaction between two interested parties. A signal is considered to be an action/ behavior or characteristic of one party (the signaller) that influences the behavior of the other party (the signal receiver). Signalling models clearly have links with agency theory.

Agency theory considers situations in which one party requires services from another in a situation where uncertainty exists, where both parties will behave in their own interest and where an information asymmetry between the principal (signal receiver) and the agent (signaller) creates problems of trustworthiness of the signals sent out by the agent (see for example Wright & McMahan, 1992 for a translation to the field of HRM).

Summarizing, signalling theory from an economic perspective is based on the assumption of rational evaluation of both costs and benefits of signalling actions by parties in a potential contract relationship. The agency perspective adds to this the issues of information asymmetry and self-interested behavior of both parties. In signalling (and agency) theory there is always an informed party (principal) and a not completely informed or imperfectly informed party (agent). The basic problem is that two parties have access to different information, and because their interests do not coincide entirely (conflict of interest), they will not share their private information completely; as a result each has an incentive not to be honest or not to fulfill its side of the bargain. Signals convey information about the signaller to a signal receiver. Both interpret the information received as signalling the true intentions of the other party. Signals are costly to produce and to send.

In line with Spence (1973) and Rousseau (1995), we will use the term *signals* for *observable characteristics attached to the organization that are subject to manipulation by organizations*. These characteristics are vehicles that organizations use to convey commitments and to offer inducements for present and future behavior (i.e. HRM and organizational structure).

We assume that signalling exists when the organization is perceived by employees as sending signals and thus assume interaction between both parties as a result of the way an organization designs HRM and structure. A signal in this way is considered to be a characteristic of the organization that influences the attitudes and behavior of the other party (degree of psychological contract violation).

Signalling theory makes us aware of the relationship between the signaller (in our case the organization in terms of HRM and organizational structure) and the signal receiver (employees in terms of their psychological contracts) based on issues such as information asymmetry.

3.2.2 A signalling role for HRM and organizational structure

Starting out to investigate the impact of structural signals on perceptions of the employment relationship, Rousseau (1995) focuses on the actual practices such as compensation, benefits, performance review, training and personnel manuals within organizations. She considers the signals these practices send as structural signals. HRM practices are in this way seen as communicating mechanisms or vehicles (Guest & Conway, 2002:22) signalling expectations of the organization regarding required behaviors of employees and communicating its own reciprocal promises to employees. Furthermore, research in this area acknowledges the signalling value of organizational structure in the sense that structure is not seen as neutral, but as expressions of intentions, aspirations and purposes (e.g. Greenwood & Hinings, 1993).

Although Rousseau (1995) focuses on HRM practices, structure in organization theory is defined much more broadly encompassing HRM practices, but also focusing often on its functional relevance in the process of organizing. Organizational structure has been extensively studied in literature on organizational design (see for instance Mintzberg, 1979). Mintzberg (1979/1983) described organizational structuring as a mechanism to reduce behavior variability, as: *“the sum total of the ways in which labor is divided into distinct tasks and then its coordination is achieved among these tasks”*.

Literature on organizational design focuses on structural forms of organizations, such as matrix and divisionalized structure, based on structural mechanisms as specialization (the differentiation of tasks and positions), formalization (the formulation of rules and procedures), and decentralization (the prescriptions of authority) (e.g. Pugh, Hickson & Hinings, 1969; Galbraith, 1977; Mintzberg, 1979; Miller, 1981).

In general HRM can be considered as an aspect of organizational design. Greenwood & Hinings (1993: 1054) make a distinction between three elements constituting design in which they explicitly position aspects of HRM as elements of organization design: (1) vertical and horizontal structures of roles and responsibilities; (2) decision systems, or policy and resource allocation mechanisms; and (3) HRM systems, such as recruitment, appraisal, and compensation.

Mintzberg (1997/1983) also considers HRM as an aspect of organizational design. He discusses a set of design parameters, which he considers to be the basic component of organizational structure: e.g. job specialization, behavior formalization, training and indoctrination, planning and control systems and vertical and horizontal decentralization. This subset of design parameters captures elements that are the specific focus of HRM researchers who conceptualize these as HRM practices, such as training and decentralization (e.g. Arthur, 1992; Boselie, 2002).

Based on this kind of literature, we consider HRM and the structure of an organization as part of the design system. HRM research focuses on those aspects of organizational design that most directly effect the employment relationship and organizational structure reflects the broader context in which HRM is interpreted and understood. Organizational structure and HRM can be seen to represent ‘structural signals’ in terms of Rousseau (1995) affecting the employee’s perception of the employment relationship.

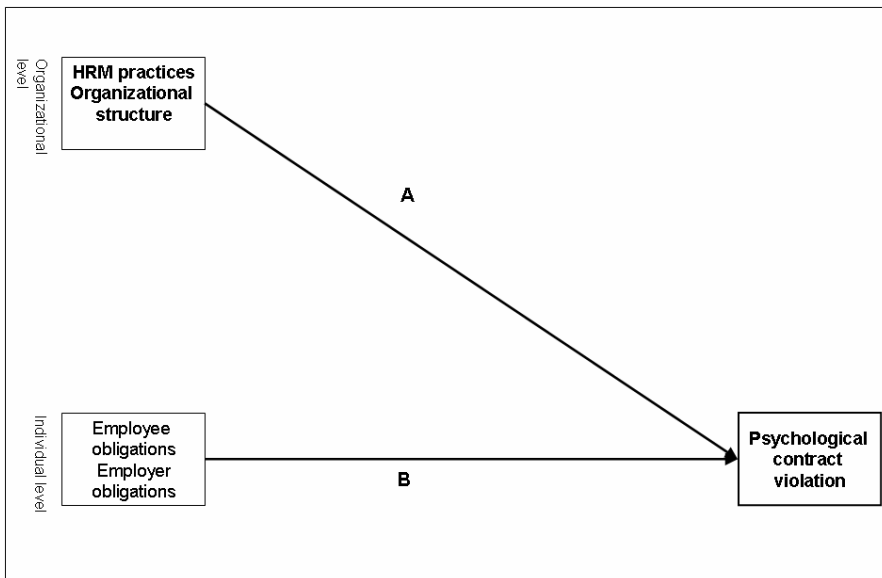
Concluding, in this research we are interested in the signalling value of HRM and structure in organizations. Because HRM most directly influences the employment relationship, our main focus is on the signalling value of HRM in terms of the psychological contract. There can be a situation of information asymmetry in that the organization decides on certain HRM practices, signalling values towards its employees, which these employees might or might not perceive in terms of their psychological contracts.

3.2.3 Conceptual model

The conceptual model in figure 3-1 presented the outcomes of our analysis of the literature until now. ‘Line B’ in the conceptual model represents the relationship between the three elements of the psychological contract. Based on exchange theory and notions on balance and reciprocity (see chapter 2) we expect that employees seek balance in their employment relationship and reciprocate (by adjusting their own obligations) according to their perception of the degree of balance. In a similar line of reasoning, signalling theory also assumes interaction between both parties.

Based on literature on signalling, we assume that signalling exists when the organization is perceived by employees as sending signals through its HRM practices and organizational structure. HRM and organizational structure are considered to be characteristics of the signalling organization and are expected to be related to the degree of psychological contract violation of the employees, the signal receivers. Putting these insights together we expect actions of the organization, HRM practices and aspects of organizational structure, to have consequences for the employees’ psychological contract (indicated by the line ‘A’ in the conceptual model).

Figure 3-1 Conceptual Model



Whilst focusing our attention on HRM we already emphasize those aspects of organizational design that most directly affect the employment relationship. However, it is necessary to understand that HRM practices do not constitute a monolithic range of practices and design elements. HRM itself is a multifaceted area of interest considering a range of topics or domains within organizations that can all have an effect on the psychological contract of employees. We discuss domains or areas in which HRM can be active in the next section.

3.3 Domains of Human Resource Management

According to authors such as Schein (1977), HRM focuses on those aspects that are critical in aligning employee and organization's goals and needs. HRM is thus considered to have a central function in the materialization of the employment relationship of employees with the organization. As suggested in the previous chapter, researchers studying the psychological contract have convincingly argued for an effect of HRM practices on employees' perceptions and evaluations of their employment relationship with the organization (e.g. Rousseau & Greller, 1994; Guzzo & Noonan, 1994; Rousseau & Wade-Benzoni, 1994). Studies investigating the impact of HRM, however, have been suffering from the fact that the field of HRM is lacking agreement on what exactly HRM is and how to operationalize HRM (e.g. Becker & Gerhart, 1996; Boselie & Dietz, 2003).

There are several reasons for this, which can be traced back to the multidisciplinary nature and development of the field (e.g. psychology/ economics/ legal/ sociology). This has resulted in a diversity of areas or domains in which HRM is studied, such as industrial relations and organizational development. These various domains focus on a range of aspects in the management of the employment relationship that can influence the perceptions of the employees regarding their relationship with the organization in a variety of ways. Aspects of industrial relations for instance focus on the representational system and thus the influence (or power) employees might have within an organization, whereas the training policy of an organization provides an indication of the way organizations will invest in the actual development of their employees. To gain insight into the signalling value of HRM it is essential to understand these various domains.

Several researchers make a distinction between HRM areas (Buitendam, 1979; Van Bastelaer & Van Beers, 1982; Beer et al., 1985; Arthur, 1992; Gospel, 1992; Osterman, 1994; Leijten, 1995). Beer et al. (1984) define HRM as involving “*all management decisions that affect the relationship between the organization and employees – its human resources*” and consider four areas as part of human resource policy: employee influence, human resource flow, reward systems and work systems.

Leijten (1995) studies the manner in which personnel management stimulates the effectiveness of organizations and makes a distinction between four domains of personnel management based on the work of Beer et al. (Beer et al., 1989):

1. Human resource flow: entails the process of input, throughput and output of personnel, thereby covering practices such as recruitment & selection, training & development;
2. Reward systems: focus on the way in which managers develop fair and equitable (im)material reward systems to satisfy and motivate personnel;
3. Work systems: focus on the design of work, for instance coordination of tasks, and on elements such as safety, health and well-being;
4. Employee influence: focus on the choice managers make regarding the extent to which they decentralize authority and power (in this domain works counsels and unions also play a role).

The development of these domains can be considered as an attempt to summarize the different areas in which HRM plays a role. In this research we use a Dutch interpretation of these domains as developed by Buitendam (1979) and tested by Van Bastelaer & Van Beers (1982). They factor analyzed 24 HRM practices resulting in a distinction between four domains of HRM, made up of combinations of HRM practices related to key issues in the organization (staffing/ employee relations) and the degree to which these practices are internally or externally oriented. For an overview of these domains see table 3-1.

Table 3-1 Overview of HRM domains (Buitendam, 1979)

HRM Domains
<u>Industrial relations system</u> : developing and legitimizing specific arrangements for labor deployment; mobilizing of resources and negotiations concerning labor agreements; regulation of collective relations
<u>Work systems</u> : development and maintenance of motivational and cultural contexts for the regulation of tension between employees and the organization; the development of commitment to the organization.
<u>Development of HRM policy and organizational development</u> : development and maintenance of the consistency between the parts of the organization and between social groups within the organization, striving towards integration and solidarity.
<u>Human resource flow</u> : mastering and regulation of external relations and internal processes concerning acquisition and allocation of personnel.

Following Buitendam (1979), Van Bastelaer & Van Beers (1982) thus differentiate between the following domains: Industrial relation system, referring to the representational system which exist within an organization; Work systems, focusing on the design of work (e.g. coordination of tasks, safety, health and well-being); Development of HRM policy and organizational development focusing on consistency, integration and solidarity within the organization; and Human resource flow, consisting of general practices such as selection and appraisal. Van Bastelaer & Van Beers (1982) discuss that organizations can differ in the attention they pay (dominance) to the various domains of HRM, based on characteristics of the organization as the degree of homogeneity and stability of the working force.

To indicate the relevance of these domains and their practices, we discuss various approaches towards studying HRM and their relationship with psychological contract violation in the next section.

3.4 Models/ approaches for studying HRM

The signalling value of HRM on employees’ perceptions of the employment relationship requires a specific view on the influence of HRM in organizations. Minimal signalling is necessary for employees to be able to build any view of their employment relationship at all. An *increase of the amount* of organizational information may provide

richer information for the employee to build his own understanding of his employment relationship with the organization. The specific *focus* of HRM (e.g. organizational development) is of course considered as important, since it signals required behavior of employees. Furthermore, coherent organizational signalling is considered important. *Alignment* between different ‘signals’ or messages send by an organization, is seen as important for constituting organizationally ‘desired’ behavior.

In their approach to the role of HRM in organizations, researchers provide evidence and theory on the impact of HRM in organizations along these avenues of reasoning (e.g. Boxall & Purcell, 2003; Paauwe, 2004). Universalistic HRM research focusing on best practices and empirically investigating the influence of these HRM practices on organizational outcomes, mainly provides evidence that helps to build our understanding of the role of HRM practices in providing information about the (fulfillment of) organizational expectations of the employment relationship (the higher the amount of HRM practices, the better, see Guest et al., (2003)).

Furthermore, another stand of this type of research emphasizes that some HRM practices are more important than others for influencing individual behavior (so called High Performance Work or High Commitment Practices, see for instance Appelbaum et al. 2000). The so-called ‘fit’ or configurational approaches, on the other hand, help to build the case for coherence of signalling. Fit approaches as contingency (vertical fit) and configurational, emphasize the importance of coherence of organizational signalling (e.g. Mintzberg, 1979; Verburg, 1998). In these approaches signalling is not only related to HRM, but also to aspects of organizational structuring. Both the universalistic and the configurational approach provide explanatory mechanisms for investigating the relationship between HRM and the psychological contract.

These two approaches and their specific relation with the psychological contract (leading to the formulation of our hypotheses) are discussed in the following subsections.

3.4.1 Universalistic approaches

Typically for a universalistic approach towards HRM is that researchers in this stream do not incorporate contingency factors, so regardless of the context of the organization these HRM practices (or their combinations) have a relationship with performance. When conceptualizing HRM in terms of HRM practices, it becomes important to distinguish the specific practices compromising HRM. There are several authors who provide us with an overview of practices used by researchers in the field.

Paauwe & Richardson (1997) for instance, extensively reviewed empirical research on the relation between HRM and performance. They conclude that research has been conducted towards the relationship between the following HRM activities and aspects of performance: recruitment/selection, HRM planning, rewards, participation, intern consistent HRM- bundles, decentralization, training/employee development, organizational structures/ internal labor market and formal procedures. When reasoning from the psychological contract, the availability of HRM policies and practices specifying the employment contract enhances the amount of information about the employment relationship. There does not seem to be a broad consensus on which practices have a universalistic relationship with aspects of organizational and/or behavioral performance and which do not. To gain more insight in this, we consider two universalistic approaches: the first regarding *the amount* of HRM practices employed by the organization; and the second regarding the specific *focus* of HRM or combinations of HRM practices.

3.4.2 Amount of HRM practices

Following the best practices or universalistic approach, there is a relationship between psychological contract and HRM based on the messages the organization sends through its separate HRM practices. In light of the psychological contract, every added HRM practice then provides additional information regarding employee and organizational obligations.

This information is relevant for employees' assessment of fulfillment of the organization's obligations, thus leading to less violation of these expectations. In a similar line of reasoning, Guest et al. (2003), in their study towards the relationship between HRM and performance in a sample of UK companies, found relationships between the greater

use of HRM practices and (subjective) indicators of performance. Thus the more HRM practices, the more signals or information sent by the organization, the less violation of psychological contracts. This leads us to the first hypothesis:

H1: The more HRM practices, the less psychological contract violation.

3.4.3 The focus of HRM

Several HRM researchers investigated the relationship between combinations of HRM practices (HRM systems) and their relationship with performance. According to researchers in this stream, although each HRM practice can be important, in order for an organization to be high performing the HRM system should consist of an effective combination with a specific focus of these practices.

One of the reasons for paying attention to combinations of HRM practices is to avoid combinations that work in opposite directions, for example combining the practices of teamwork and rewarding individual performance. Another reason for studying combinations of practices is the costs associated with the duplication of practices. The underlying premise of this kind of literature is that the use of certain kinds of systems with their specific focus will be positively related to performance of the organization when compared to other systems. Considering these combinations, we need to gain insight into the specific practices that constitute a HRM system and the basis on which practices would be bundled together.

Several authors identify a set of ‘best practices’. Delery & Doty (1996) for instance identify seven HRM practices that they consider as having a relationship with organizational performance based on the work of amongst others Osterman (1987) and Miles & Snow (1984): internal career opportunities, formal training systems, appraisal measures, profit sharing, employment security, voice mechanisms and job definition. These practices are considered strategic HRM practices in the sense that they are supposed to have a relationship with organizational performance.

Pfeffer (1994) concluded in his research towards the relationship between practices and performance, that the greater use of the management practices as employment security, selectivity in recruiting, high wages, incentive pay, employee ownership, information sharing, participation and empowerment, training and skill development, wage compression, the higher the productivity and profit in organizations in general.

Boselie & Dietz (2003) investigated the relationship between HRM and performance by reviewing empirical articles in leading journals. In searching for common elements in practices constituting HRM, they conclude that the five most common policies and practices which are considered to be part of HRM are: training (general and/or specific)/ employee development; incentive-based payment systems; decentralization/ employee participation in decision-making; investment in selection; and teamwork. According to Boselie & Dietz (2003), there is little consensus on which practices exactly should be combined, which according to them might be based on a lack of theory for selecting and classifying practices (which is amongst others reflected in the terminology of these combinations of practices).

HRM theorists as Arthur (1992), Kochan & Osterman (1994) and Pfeffer (1994) propose high commitment and other types of high involvement work systems, thereby suggesting that there exist ‘optimal’ HRM systems for managing employees. This is clearly a universalistic argument in that regardless of the circumstances within the organization and of the environment of the organization, these systems are considered best for all organizations.

Arthur (1992/1994) develops two possible HRM systems, the commitment maximizing system (encouraging discretionary employee efforts, a way to attract, motivate and retain qualified employees committed to the goals of an organization) and the cost reduction system (aimed at reducing direct labor cost and other employment-relations expenditures (see table 3-2). Arthur (1994) found within in his research on steel mini-mills, that HRM systems emphasizing employee commitment were associated with a higher productivity.

Table 3-2 Two systems of workplace industrial relations (Arthur, 1992: 491)

Industrial Relations Functions	Type of system Cost reduction	Commitment Maximizing
Organization of Work	Job tasks narrowly defined	Broadly defined jobs
Employee Relations	Very little employee influence over “management” decisions; No formal employee complaint/ grievance mechanisms; Little communication/ socialization efforts	High level of employee participation/ involvement; Formal dispute resolution procedures (non-union firms) Regularly share business/ economic information with employees
Staffing/ Supervision	Low skill requirements; Intense supervision/ Control	High percentage of skilled workers; Self-managing teams
Training	Limited training efforts	More extensive, general skills training
Compensation	Limited benefits Relatively low wages Incentive-based	More extensive benefits; Relatively high wages; All salaried/ stock ownership

MacDuffie’s (1995) research on automotive assembly plants concludes that high commitment HRM practices (such as contingent compensation and extensive training) outperformed control oriented HRM practices. Furthermore, Osterman (1994) found that organizations that value employee commitment are associated with investing in innovative work practices. According to Osterman (1994), the use of these innovative work practices or flexible work systems (such as teamwork, job rotation, quality circles, total quality management) results in higher productivity for all (American) organizations.

Appelbaum et al. (2000) in their study towards High Performance Work Systems (HPWS), examining three US industries (steelmaking, clothing manufacture and medical electronics manufacture) also adopt a universalistic systems perspective. According to them, work systems and employment modes that support high performance are: more rigorous selection, better training systems to increase ability levels, more comprehensive incentives to enhance motivation, participative structures (such as self-managing teams and quality circles) that improve the opportunity to contribute (Appelbaum et al., 2000).

Researchers thus acknowledge that organizations can differ in their approach towards managing its employees (for instance a focus on control or commitment) and there can be found indications that commitment oriented approaches outperform more control oriented ones. This raises the question whether certain combinations are better than others? Although researchers acknowledge that organizations can differ in their approach towards managing employees, several authors focus on commitment enhancing HRM systems because their research supports that these are associated with higher performance than do for instance control systems (e.g. Arthur, 1994). The rationale for this is they align the interest of employees and organizations in a better way.

According to Huselid (1995), employees will only contribute discretionary effort if they believe that their interest is aligned with the interest of the organization (reciprocal investment). Their premise is that high performance work (HPW) or innovative or high commitment oriented practices are the best for achieving high performance. A highly committed workforce is thus seen as important in realizing organizational goals.

These researchers thus assume that adopting these commitment systems (or whatever terminology they use) are best for all organizations and do not specify alternative systems which could be equally effective. These commitment systems are supposed to generate high commitment as a result of their focus on enhancing skills and motivation of employees. The assumption is that organizations cannot be high performing without the commitment of employees. These researchers assume that commitment systems outperform universally all other systems.

Concluding, there is no specific consensus on which practices can be considered as commitment HRM practices. In general there is agreement on their main focus: enhancing skills and motivation of employees. Organizations that focus on commitment HRM practices are considered as consciously paying attention to and investing in their human capital. HRM practices are aimed at motivation of employees by increasing their skills and involvement (as the degree to which HRM departments pay attention to and accompany training, communication, job rotation and so on).

Referring back to the four domains of Van Bastelaer & Van Beers (1982) as presented in table 3-1, commitment HRM practices are part of the domains ‘Development of HRM policy’ and organizational development’ (focusing on consistency, integration and solidarity within the organization) and ‘Work systems’ (focusing on the design of work, e.g. coordination of tasks, safety, health and well-being).

In the previously discussed literature, not only these practices themselves, but also internal consistency or fit between these commitment or high performance practices, is seen as important for constituting high performance. Basically this literature suggests that unless there is consistency or fit between the practices, there will be no relationship with high performance.

This raises the question on how to combine these commitment practices in a system. According to Delery (1998) this depends in large on the nature of these practices and their combinations:

1. Additive: practices have independent non-overlapping effects on the outcome. An example of this would be the use of two assessment tests, measuring different aspects. Together they may have a good result, but not more than the sum of the two parts, they are independent;
2. Substitutable: adopting combination of practices does not add something to the outcome of interest, but is only costly. Both practices lead to identical outcomes. When incorporating both practices, this would not lead to a better result, it just costs more;
3. Positive synergetic effects: combination greater than the sum of parts;
4. Negative synergetic effects: when the practices work against one another, organizations that combine the two practices will be less effective than if they just incorporated one of them: as Becker et al. (1997) call it: “a deadly combination”.

Even though commitment practices that constitute a commitment system are expected to be interrelated, when multiplying them in order to capture synergetic effects, they raise several problems: for instance when one practice is not present, this would result in a zero score on commitment. Although theoretically ‘commitment researchers’ post needs for fit between the practices, practically it is too complicated and out of the four possible ways of combining the practices into a system (Delery, 1998), adding the practices seems most appropriate (MacDuffie, 1995; Becker & Huselid, 1999).

In line with the previous discussed literature on commitment HRM (e.g. Arthur, 1994; Huselid, 1995; Appelbaum et al., 2000), we expect that commitment HRM practices align the interest of employees and organizations. These practices are expected to have a universalistic additive and positive effect on the employees’ performance. Furthermore, we assume that the more the organization focuses at commitment HRM, the more consistent the signalling value of HRM in terms of the psychological contract.

Based on these insights, we expect that violation of the psychological contract can be explained by the degree to which the organization employs commitment oriented HRM practices. This leads to the second hypothesis.

H2 The more commitment focused HRM, the less psychological contract violation.

In the previous discussed literature researchers thus assume that commitment oriented HRM practices outperform irrespective of the context. According to authors like Delery & Shaw (2001), this might not necessarily be the case. The effectiveness of a commitment system could depend on the circumstances within the organization and of the organization. This stream of research is based upon a configurational approach.

We discuss the configurational approach towards HRM and organizational structure and its signalling implications in light of the psychological contract in the following subsection.

3.4.4 Configurational approaches

Researchers within the configurational stream focus on combinations of HRM practices and its wider organizational context (MacDuffie, 1995; Delery & Doty, 1996). The configurational approach emphasizes the notion of fit, both between HRM practices (internal fit) and between HRM and its wider organizational context (external: organizational and vertical fit), reflected in such factors as structure, strategy, technology, environmental stability and organizational size (Delery & Doty, 1996; Schuler & Jackson, 1996).

The assumption of the configurational approach is that the closer an organization's activities resemble one of the typologies (configurations), the greater the performance gains, because of the synergetic effects of the bundles of practices. In most cases the typologies stem from theory (theoretical constructs) rather than practice (empirically observable).

The configurational approach is based upon two assumptions or principles: (1) *holistic principle of inquiry*: identification of configurations or unique patterns of factors that are posited to be maximally effective; and (2) assumption of *equifinality*: multiple unique configurations can result in maximal performance (Miller & Friesen, 1984; Doty et al., 1993; Delery & Doty, 1996). According to the assumption of equifinality, a situation can be reached from different initial conditions and in different ways (Gresov & Drazin, 1997). In this line of reasoning a variety of combinations of organizational structures and HRM can exist.

A constraint on the *amount* of effective configurations could be the presence of contingency factors (e.g. Doty, Glick & Huber, 1993). According to the principle of equifinality, however, the forms an organization adopts can be equally effective. This is clearly a break with the approach discussed in the previous subsection, where researchers assume that optimal combinations of HRM practices exist in general (i.e. commitment).

The configurational and contingency approaches have inspired a number of currently very influential perspectives on the strategic design of HRM. Regarding contingency approaches, many researchers advocate that HRM should be linked to strategy, and consider strategic HRM as the focus of their research (e.g. Arthur, 1992/1994; Schuler & Jackson 1996). According to Boxall & Purcell (2003: 48) “*the term strategic implies a concern with the ways in which HRM is critical to the firm’s survival and its relative success*”. The strategic nature of HRM incorporates that the objectives of an organization have an influence on the way it manages employees, it emphasizes the strategic role of HRM in meeting business objectives (Delery, 1998).

Various authors (Arthur, 1992; Delery & Doty, 1996; Lepak & Snell, 1999; Ostroff, 2000; Boxall, 2003) propose typologies of HRM based on the strategy of the organization, thereby taking a contingency perspective on HRM, combined with a configurational perspective, in that they propose typologies of equally effective combinations of HRM depending on the strategy of an organization.

As suggested in the work of for instance Delery & Doty (1996) and Verburg (1998), the configurational approach can be seen as based on a combination of a special sort of contingency approach and bundles or systems approach because it combines notions of horizontal vertical and organizational fit. Since we are interested in structural signals, our main focus is on HRM and organizational structure as elements of the configurational approach, and not on the typical strategy of the organization.

Typically, configurational approaches were used in organizational design, in which some sort of classification based on structure was made (Pugh et al., 1969; Mintzberg, 1979). In these types of approaches the emphasis is on structural forms, design and context/ contingency factors. Coherence between the various design elements (horizontal and organizational fit) is seen by various researchers as more important than fit of the design with external demands (see Gresov & Drazin (1997: 407/408) for further explanation on this topic).

In the past decades various HRM Researchers have attempted to identify several ideal types, i.e. combinations of structure, HRM and context factors that naturally go together and form logical coherent sets of mutually reinforcing practices (e.g. Paauwe, 1989; Verburg, 1998; Pichault & Schoenaers, 2003). These researchers take a configurational approach, integrating structural features of an organization with HRM systems. Paauwe (1989), Verburg (1998) and Pichault & Schoenaers (2003) investigated the relationship between HRM and characteristics of the organization and the environment, based on the work of Mintzberg (1979). Mintzberg (1979) combines notions of internal and external fit. He states that in order for organizations to be effective, they should design configurations that are internally consistent and are aligned with contextual elements such as age, size and technology. According to Mintzberg (1979) ideal types of organizational structures are coherent organizational systems that are extremely effective in dealing with certain environmental factors. External factors or context factors are for instance stability, level of knowledge, diversity and hostility. Internal factors are for instance size, age, technical system and distribution of power.

The elements of organizational structure in the work of Mintzberg include:

1. Five basic parts of the organization: the operating core, strategic apex, middle line, techno -structure, and support staff;
2. Five basic mechanisms of coordination: mutual adjustment, direct supervision, and the standardization of work processes outputs, and skills;
3. The design parameters: job specialization, behavior formalization, training and indoctrination, unit grouping, unit size, action planning and performance control systems, liaison devices, vertical decentralization, and horizontal decentralization;
4. Contingency factors: age size, technical system, environment and power.

Mintzberg (1979) distinguishes between various basic configurations: Simple Structure; Machine Bureaucracy, Professional Bureaucracy, and Adhocracy (in later work he also makes a distinction between the Divisional, Missionary and Political configuration). Each of these configurations relies on one of the five coordinating mechanism and tends to favor one of the five parts.

According to Mintzberg (1983), coordinating mechanisms, design parameters and situational or context factors all seem to fall into natural clusters, or configurations. Effective organizations achieve an internal consistency among their design parameters as well as compatibility with their situational factors (Mintzberg, 1983: 152). An organization is often driven towards one of the configurations in its search for harmony in its structure (Mintzberg, 1983: 288): *“It may experience pulls towards different configurations but it often exhibits a tendency to favor one of them. The organization with an integrated structure also faces an environment, a technical system, a size, even an age and a power system consistent with that structure. Thus, we sometimes find that different organizations in the same industry prefer different configurations depending on which pull they decided to respond to”*.

In an attempt to summarize the conclusions of the configurational and contingency approaches and incorporate HRM within these approaches, authors like Paauwe (1989), Pichault & Schoenaers (2003) and Verbarg (1998) developed ideal typical HRM systems expected to be most effective within the configurations of Mintzberg, incorporating elements of the studies discussed before. We will shortly discuss the work of these authors.

Paauwe (1989)

Paauwe (1989) conducted longitudinal qualitative research towards the relationship between HRM policy, organizational structure and the environment of the organization. For each of three configuration of Mintzberg, he conducted research within two organizations.

With regard to aspects of HRM, Paauwe (1989) makes a distinction between:

- Procedural HRM rules: rule setting and process of decision making (formal/informal, planned/unplanned, top down/ bottom-up, etc.).
- Substantial HRM rules: HRM-activities (number, detailed/not detailed, (un)formalized, etc.)

Based on the work of Mintzberg, he related these two aspects of HRM with three of Mintzberg's ideal types, namely the Simple structure, the Machine bureaucracy and the Professional bureaucracy.

In his study Paauwe found support for the existence of these ideal type configurations incorporating HRM. In his model Paauwe incorporated both commitment oriented HRM (in line with Van Bastelaers & Van Beers, 1982), and internal and external contingency elements (e.g. Mintzberg, 1979). Table 3-4 presents an overview of the insights of the work of Paauwe (1989) and also two elaborations of this kind of perspective by Verburg (1998) and Pichault & Schoenaers (2003).

Verburg (1989)

The model of Verburg (1998) combines fit among elements of organizational design, contextual factors and HRM. In order to study fit between HRM practices, Verburg (1998) defines HRM along two dimensions:

- The nature of the HRM policy: defined as control versus commitment oriented;
- Locus of responsibility for employee development (company versus individual).

Combining these two dimensions in line with the work of Mintzberg, Verburg (1998) has developed four types of organizations each with their own typical design of HRM: machine model, market model, development model and flexibility model (see table 3-3).

Table 3-3 Dimensions of Configurations (translated from Verburg 1998: 46)

Goal of HRM	Responsibility outcomes	
	Organization	Individual
Control	<u>Machine model</u> <ul style="list-style-type: none">- Many rules and procedures- Few possibilities for development- HRM department	<u>Market model</u> <ul style="list-style-type: none">- Few rules and procedures- Few possibilities for development- Owner
	<u>Developmental model</u> <ul style="list-style-type: none">- Many rules and procedures- Many possibilities for development- Decentral. departments (working with HRM-dep.)	<u>Flexibility model</u> <ul style="list-style-type: none">- Few rules and procedures- Many possibilities for development- Line managers

Based on cluster analysis, Verburg (1998) found support in his data on 175 Dutch organizations for two of the four models, the developmental (Mintzberg’s professional configuration) and machine model (Mintzberg’s machine bureaucracy), which he explains as due to the nature of his sample (high share of relatively formalized companies). As did Paauwe (1989), Verburg (1998) incorporates the earlier mentioned dimension of commitment as well as context elements.

Pichault & Schoenaers (2003)

Based on the work of Mintzberg (1979), Pichault & Schoenaers (2003) developed five HRM models, referring to the way in which social relations are managed:

1. Arbitrary model related to Mintzberg's simple structure: characterized by an absence of any codified criteria (for instance, absent industrial relations). The leaders' absolute power is an obstacle to any recourse to formalized criteria;
2. Codifying model, which is related to Mintzberg's machine model: systemizes the various dimensions of HRM policy. It involves impersonal criteria, defined by analysts, notably in the context of labor agreements, in which the right to union representation is exerted, ruling social relations by applying them uniformly to all members of the organization. Characterized by high involvement of unions and coordination by formal mechanisms;
3. Value model which is related to Mintzberg's missionary organization: HRM operates on an implicit mode, strongly based on the notions of self-sacrifice, with constant reference to values;
4. Agreement model, which is related to Mintzberg's professional configuration: the members of an organization agree to collectively define the context and terms of their coexistence. There is a presence of skilled operators, coordinated by standardization of skills. Operators have much room to maneuver (decentralization);
5. Individualizing model which is related to Mintzberg's adhocratic configuration: is based on the personalization of social relations. There is a presence of skilled operators and a highly flexible structure based on interpersonal relationships.

The HRM models of Pichault & Schoenaers (2003) mainly focuses on the distribution of power, and the conditions under which work is performed, on aspects of Van Bastelaers & van Beers (1982) domains Industrial relations and Work systems.

3.4.5 Configurational approach of this study

Building on the model of Mintzberg (1979), (and without aiming at being complete) table 3-4 provides an overview of the insights of the previously discussed approaches of Paauwe (1989), Verburg (1998) and Pichault & Schoenaers (2003). In line with Verburg (1998), we focus our attention on four ideal types of Mintzberg: simple structure, machine bureaucracy, professional bureaucracy and adhocracy.

Considering our focus on commitment HRM (as discussed in the previous section), these four ideal types can be considered to be the most straightforward in their underlying parameters. The divisional ideal type for instance, can be seen as a hybrid form, since within the divisional configuration each division can have its own typical design, which can well be described using the three other configurations (Paauwe, 1989). As presented in table 3-4, these four configurations differ clearly from each other on their combination of HRM, organizational structure and context.

Because our interest in structural signals, which are defined as “*observable characteristics attached to the organization that are subject to manipulation*”, in this study we will focus at the most defining and frequently used structure-concepts of these configurations, namely formalization and decentralization. One of the most defining concepts of organizational context in these approaches clearly is the complexity and stability of the environment or the degree of uncertainty of the environment.

Table 3-4 Overview of elements of the four configurations ²

	Simple structure	Machine bureaucracy	Professional bureaucracy	Adhocracy
Key coordinating mechanism	Strategic apex	Standardization of work	Standardization of skills	Mutual adjustment
Key part of organization	Strategic apex	Technostructure	Operating core	Support staff
Design parameters:	Little training and indoctrination	Little training and indoctrination	Much training and indoctrination	Much training
Training and indoctrination	Little formalization/ organic	Much formalization bureaucratic	Little formalization bureaucratic	Little formalization
Formalization of behavior				
Bureaucratic/ Organic				
Decentralization	Centralization	Limited horizontal decentralization	Horizontal and vertical decentralization	Selective decentralization
Situational factors:	Typically young and small (first stage)	Typically old end large (second stage)	Varies	Typically young
Age and size				
Environment	Simple and dynamic, sometimes hostile	Simple and stable	Complex and stable	Complex and dynamic, sometimes disparate
Pauwue (1989)	<u>Procedural HRM rules:</u> -informal -unplanned -top-down <u>Substantial HRM rules:</u> small number -not detailed -not formalized -control -emphasis on workers rights -no job, function or reward	<u>Procedural HRM rules:</u> -formal -planned -top-down (through staff, department HRM) <u>Substantial HRM rules:</u> -high number -detailed -formalized -as well rules for control as commitment oriented activities	<u>Procedural HRM rules:</u> -informal -unplanned -nor top-down or bottom-up, but linked to initiatives of diverse divisions <u>Substantial HRM rules</u> -number depends on size -formalization depends on size -emphasis on training and development	

² Based on Mintzberg, 1979/ 1983; Pauwue, 1989; Pichault & Schoenaers, 2003; and Verbarg, 1998. Although Mintzberg's (1979) description of the dimension of the configurations is more extensive than presented here, (considering in addition parameters as planning and control systems, technical system, specialization, and so on) for convenience reasons we present here a shorter version, capturing our main variables of interest.

Chapter 3 – HRM Signals

	classification - no systematic review of employees		-strongly commitment oriented	
Verburg (1995/2004)	Market model -hardly any developed HRM policy -few formal procedures -owner/founder of organization responsible for HRM -limited rules and regulations -high levels of direct supervision -informal -control oriented	Machine model -employees tasks narrowly defined -not many opportunities for development -large personnel departments -formal and simple recruitment and selection procedures -compulsory and formal training focused on technical skills -strongly formalized reward systems -not many MD programs -clear performance measures - standardized evaluation forms -control oriented	Developmental model -large central personnel department for setting out policy, execution tends to be decentralized -development and training opportunities for highly educated professionals -recruitment and selection decentralized -no compulsory training courses - wide and varied job and function classification -commitment-oriented	Flexibility model -tasks are broadly defined -execution of HRM in hands of line managers - few formal procedures -much attention for training and development of broad skills -central organized recruitment and selection -jobs are broadly defined -no formal system of job classifications or tasks descriptions -no standard forms and no formal system of sanctions -no compulsory training and MD program -Commitment oriented
Pichault & Schoenaers (2003)	Arbitrary model: -absence of industrial relations -unplanned hiring and selection -informal training, on the job, short term oriented	Codifying model -systematization of dimensions of HRM policy -Involvement of unions, coordination by formal mechanisms -formal hiring procedures - formal training, short-term oriented	Agreement model -professional associations and lobbies -coordination by standardization of skills -no formal training programs	Individualizing model - flexible structures - interpersonal relationships

With regard to HRM the professional bureaucracy and the adhocracy are clearly focused on commitment of employees. Furthermore, the configurations differ substantially in the degree to which they are formalized and decentralized and the environment the organization faces (degree of uncertainty). Summarizing these insights, we developed a configurational model along the lines of Mintzberg's classification on organizational structure and context and extended this classification with insights derived from the work of Paauwe (1989), Pichault & Schoenaers (2003) and Verburg (1998) on the design of HRM within these configurations and the notions of commitment HRM as discussed in the previous section. This leads us to the following model for studying the configurational approach (table 3-5):

Table 3-5 Configurational approach of this study

	Simple Structure	Machine Bureaucracy	Professional Bureaucracy	Adhocracy
Degree of Formalization	Low	High	High	Low
Degree of Decentralization	Low	Low	High	High
Degree of Uncertainty	High	Low	Low	High
Focus on Commitment HRM	No	No	High	High

1. Simple structure

Organizations that can be characterized as a simple structure are typically young and small organizations that are starting up. The environment is typically uncertain. The owner is directly involved in all organizational processes, resulting in a highly centralized but low formalized organization. Because of its small size, there is typically no formal HRM within this type of organization and HRM is the responsibility of the owner. This results in relatively no/little use of formal commitment HRM practices.

2. Machine bureaucracy

Organizations that can be characterized as a machine bureaucracy are typically large organizations that have existed for a long time (for instance in the manufacturing and construction sectors). The environment is stable and as a result relatively certain. Big HRM departments are responsible for HRM, practices are formalized and HRM is characterized by a strong emphasis on control.

3. Professional bureaucracy

This type of organizations can be found in big service organizations, like universities, hospitals, and ministries. These organizations are aimed at delivering complex services in a relatively stable environment. HRM is commitment oriented, focusing on enhancing skills and motivation of employees, with a strong emphasis on training and development. Because of the nature of the work, the organization is highly decentralized.

4. Adhocracy

Organizations that can be characterized as an adhocracy are organizations thriving in a complex and unstable environment (for instance organizations in informational technology). As a result of this there is little formalization of rules and procedures and decision power is highly decentralized. HRM is commitment oriented.

The essence of the configurational approach is that coherence between organizational elements is important, that context matters. This approach extends commitment HRM by focusing on the alignment between commitment HRM, organizational structure (in our study operationalized by the concepts of formalization and decentralization) and organizational context (in our study: degree of uncertainty). In light of the psychological contract, these four ideal types are expected to send consistent signals, leading to less violation of psychological contracts, because employees will have less conflicting expectations of obligations. This leads us to the following hypothesis:

H3: The more an organization resembles an ideal type, the less psychological contract violation.

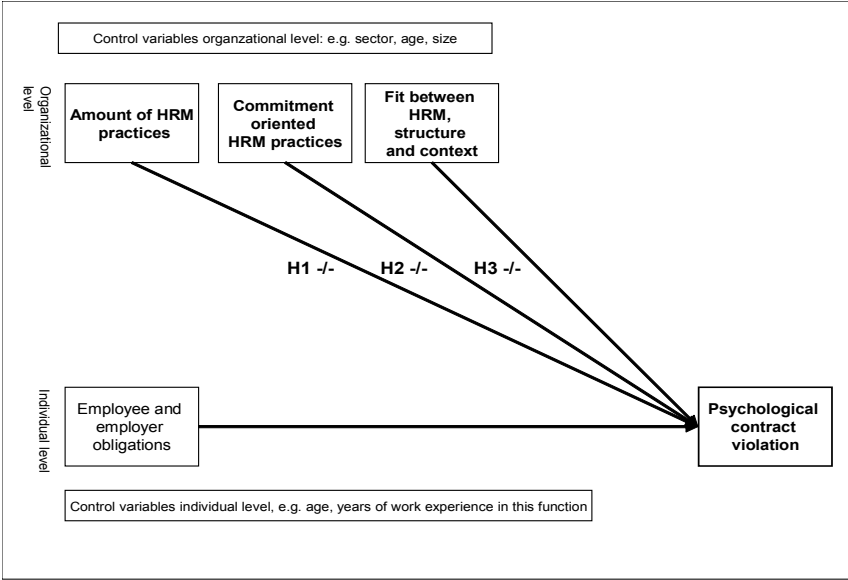
3.5 Conclusion

In this chapter we discussed conceptualizations of HRM and various approaches of studying the signalling value of HRM and structure within organizations. In line with Spence (1973) and Rousseau (1995), we use the term *signals* for observable characteristics attached to the organization that are subject to manipulation by organizations, namely *vehicles organizations use to convey commitments, offer inducements for present and future behavior* (i.e. HRM and organizational structure).

In line with Beer et al. (1984) we defined HRM as involving “*all management decisions that affect the relationship between the organization and employees – its human resources*”. To study HRM within organizations, we followed the distinction within various domains of HRM by Van Bastelaer & Van Beers (1982), namely: Industrial relations, Work systems, Development and Human resource flow. The different domains each show areas of influence of HRM within organizations and represents choices regarding the management of human resources.

For empirically studying the signalling effect of HRM and structure on the psychological contract, we discussed three approaches towards studying HRM, two universalistic or ‘best practices’ approaches and a configurational approach. These three approaches are expected have different signalling effects on the psychological contract of employees, leading us to an extended version of our conceptual model (presented in figure 3-2).

Figure 3-2 Extended conceptual Model



H1: The more HRM practices, the less psychological contract violation

Universalistic HRM research gives insights into the role of HRM practices in providing information about the organizational expectations of the employment relationship. Based on this kind of research, we concluded that every added HRM practice provides additional information regarding employee and organizational obligations. This information is relevant for employees’ assessment of fulfillment of the organization’s obligations, thus leading to less violation of their psychological contract. Thus the more HRM practices, the more signals or information sent by the organization, the less violation of psychological contracts.

H2 The more commitment focused HRM, the less psychological contract violation.

Literature on commitment focused HRM practices helped to build the case for the relationship between the focus of HRM and psychological contract violation. In line with the literature on high commitment HRM systems (e.g. Arthur, 1994, Huselid, 1995; Appelbaum et al., 2000), we expect that commitment HRM practices better align the interest of employees and organizations than do other practices.

The focus on commitment is expected to have a universalistic positive effect on employees' psychological contract violation, meaning that independent of the context commitment HRM has a positive effect. We expect that violation of the psychological contract can be explained by the degree to which the organization employs commitment oriented HRM practices

H3: The more an organization resembles the ideal type, the less psychological contract violation.

In light of the psychological contract, coherence between the signals send by an organization is seen as important. Based on the configurational approach, we extended the previous approach on commitment HRM by combining commitment HRM with organizational structure (formalization and decentralization) and organizational context (degree of uncertainty). Based on the work of Mintzberg (1979), Paauwe (1989), Verburg (1998) and Pichault & Schoenaers (2003) we developed a model for studying the configurational approach, consisting of four ideal types. In light of the psychological contract, these four ideal types are expected to send consistent signals, leading to less violation of psychological contracts, because employees will less conflicting expectations of obligations.

In this chapter we developed our conceptual model and hypotheses. In the following chapter (chapter 4) we translate our concepts into indicators and measurements. Because the focus of our study concerns the relationship of concepts at two levels, individual and organizational, in chapter 4 we also present the appropriate analyzing strategy (multi-level). The conceptual model and hypotheses as presented in this chapter, their specific ways of operationalizing and analyzing strategy (chapter 4), provide the input of the results based on our empirical analysis in (Chapter 5).

CHAPTER 4 RESEARCH DESIGN

4.1 Introduction

In this chapter we operationalize the conceptual model and hypotheses presented in chapter 3. Because the key research issue concerns relationships between variables at two levels of analysis, namely the individual level psychological contract and the organizational level HRM, we collected data that has a nested structure and use an analytical strategy typically for handling such data. In section 4.2 we will discuss theory and methods for analyzing nested data. In section 4.3 we will propose the analytical strategy of this research, the design of the study and our research model. Our method for collecting data and the actual indicators and measures will be presented in the remaining sections.

4.2 Analysis of data at multiple levels

Multi-level data requirements

The approach of our study is multi-level, in the sense that we are interested in the relationship between macro level or organizational level concepts (HRM and more general design factors as structure) and micro-level or individual level concepts (psychological contract). We, therefore, have to gather data of organizations on HRM, their organizational structure and the environment of their organization and of individuals within these organizations concerning their psychological contract. Consequently, our data will have a nested structure. Rousseau already argued in 1985 for the importance of building and testing multi-level models in research on organizations. Nowadays there is more interest in a multi-level perspective on organizations, with authors like Ostroff & Bowen (2000) arguing that especially in the area of HRM multi-level models are needed.

Multi-level data analysis

In general, we could decide on two options in handling our multi-level data: (dis)aggregation and hierarchical models. If lower-level data (individual level) is aggregated, the aggregated variable is expected to measure some phenomenon not evident at the lower level (Bliese, 2000: 368).

A problem with aggregating the data is that this might result in a group-level variable with questionable construct validity. Disaggregating on the other hand leads to an exaggerated sample size (Snijder & Bosker, 1999). Consider for example a two-stage sample of 10 universities and 100 students per university. In total there are $10 * 100 = 1000$ students. If we disaggregate the data to the level of students, and estimate a relationship between characteristics of the university and the students - without taking into account that there are students who are in the same university - we implicitly assume there are 1000 independent observations, while actually there are only 10 independent observations of university characteristics.

A more suitable approach to analyzing multi-level data is offered by multi-level analysis. Multi-level analysis refers to statistical methods that explicitly take account of the relationships among constructs at multiple levels of analysis (Klein & Kozlowski, 2000). The main statistical model of handling multi-level theory is the hierarchical linear model.

Hierarchical models

Hierarchical models explicitly recognize that individual within groups may be more similar to another than they are to individuals in another group and may, therefore, not provide independent observations (Hofmann et al., 2000: 471).

Hofmann et al. (2002: 489/490) consider the following methodological assumptions underlying multi-level theory:

- Lower-level units are nested within higher-level units (in our study individuals/ employees within organizations);
- Lower-level units are exposed to and influenced by characteristics and/ or processes of the higher-level units (in our study HRM and organizational structure influencing psychological contract violation);
- The outcome variable is measured at the lowest level of interest (in our study is the dependent variable psychological contract violation measured at the individual level);
- The outcome variable varies both within the lower-level units and between the higher-level units (as can be translated in an intraclass correlation coefficient >0 , as presented in the following chapter).

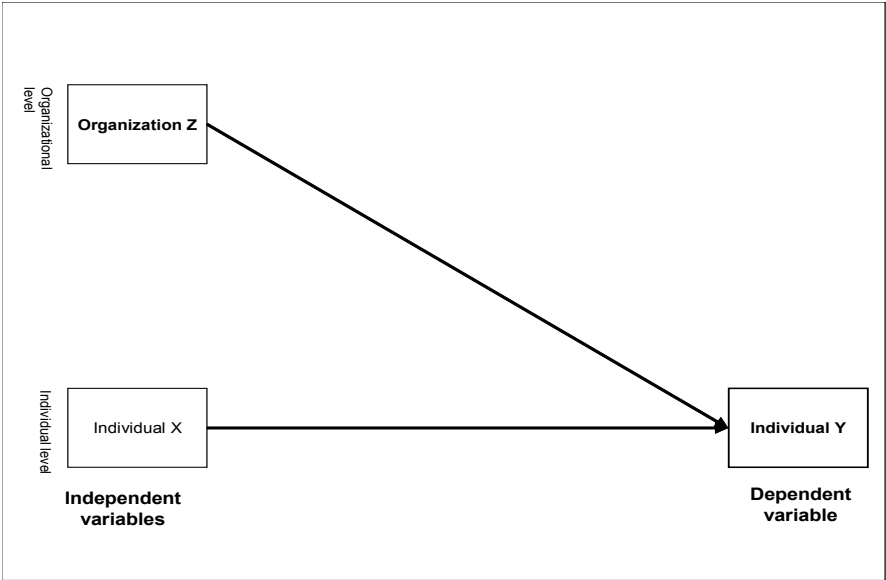
According to Snijders & Bosker (1999), multi-level statistical models are always needed when interested in relationships between constructs at different levels. The individual and the organization are both considered as sources of variability, and should, therefore, be modeled not as fixed but as random parts of the model. Specific in multi-level analyzing is the possibility of assigning the source of the unexplained variance (random error) in the dependent variable to two levels, organizational and individual level. Hierarchical models explicitly model both the individual level and the higher organizational level random-error components thereby recognizing the interdependence of individuals within the same groups.

Hierarchical relationships occur when events at one level of analysis influence or are influenced by events at another level of analysis (Hofmann et al., 2000: 468). The reason for not using more mainstream statistical techniques as Ordinary Least Squares (OLS) lies in the fact that the observations in multi-level models cannot be seen as independent from each other (e.g. Hox, 2002). According to Hox (2002:5): *“Standard statistical test lean heavily on the assumption of independence of the observations. If this assumption is violated (and in multilevel data this is almost always the case) the estimates of the standard errors of conventional statistical tests are much too small, and this results in many spuriously ‘significant’ results.”*

4.3 Analytical strategy

To allow for a multi-level design we collected nested data, i.e. data of organizations and individuals within these organizations. In line with multi-level approaches and a hierarchical way of analyzing our data we propose the following research model, in which we are interested in relationships between organizational level concepts (structural signals: amount of HRM activities /commitment HRM/ configurations) and the degree of psychological contract violation.

Figure 4-1 Research Model



- Individual level dependent variable Y= psychological contract violation
- Individual level independent variables X = obligations employee/ obligations employer
- Organizational level independent variables Z = structural signals (amount of HRM practices/ commitment HRM / configurations)

The logic of hierarchical models can be viewed as a two-stage procedure (although the model is estimated simultaneously). Relationships among individual level variables (psychological contract obligations and violation) are estimated separately for each organization. The outcome of this first stage is the intercept (and slope terms when considering cross-level interactions) estimated separately for each organization (Hofmann et al., 2000). These intercept (and slope) estimates are then used as outcome variables in the second stage. The equation format of hierarchical linear models is presented in figure 4-2.

Figure 4-2 Equations of multi-level model

$Y_{ij} = \beta_{0j} + \beta_{1j} (X_{ij}) + R_{ij}$	
$B_{0j} = \gamma_{00} + \gamma_{01} (Z_j) + U_{0j}$	Represents the main-effect
$B_{1j} = \gamma_{10} + \gamma_{11} (Z_j) + U_{1j}$	Represents the cross-level interaction
Y_{ij} = degree of Y of individual i in organization j B_{0j} = intercept value for organization j B_{1j} = regression slope for organization j R_{ij} = random individual error X_{ij} = individual level variable for same individual i in organization j Z_j = organizational level measure γ_{00} and γ_{10} = organizational level intercept terms γ_{01} and γ_{11} = organizational level slope terms U_{0j} and U_{1j} = organizational level residuals R_{ij} , U_{0j} and U_{1j} are assumed to follow normal distributions with mean 0, and to be independent of each other	

In this research our main interest is not in cross-level interactions (for instance the degree to which HRM will moderate the relationship between obligations and violation of the psychological contract). A reason for this is that in literature on psychological contracts and HRM there are no indications for such effects. In a more explorative manner we will check for the existence of random cross-level interaction. We are thus foremost interested in the main effect of organizational level HRM and organizational structure on psychological contract violation. We, therefore, use a basic model of the hierarchical linear model considering only the random intercept.

Although there are many software packages available for handling hierarchical linear modeling (for an overview see for instance Snijders & Bosker, 1999) for convenience reasons we used SPSS 12.

The research design will be translated in specific models (see chapter 5) for the various approaches we distinguished in studying the relationship between HRM and more general design factors (as structural signals) and the psychological contract.

4.4 Data collection method

A standard questionnaire was distributed among groups of employees in 49 organizations during the time period 1999-2001. The questionnaire was distributed with the help of Masters students of the Dutch Open University, who studied HRM and worked within the organizations in the area of HRM. The students had to make sure their sample consisted of at least 40 respondents. The students were free to decide which stratification variables to use (such as individual-, and job characteristics and type of employment contract). The total number of individual responses was 2099. The questionnaire measured individual level work attitudes and perceptions of the employment relationship. Besides these questionnaires, the HRM manager of each organization characterized his/her organization on a number of predefined dimensions using a standard protocol. Because we are mainly interested in HRM practices within organizations the HRM manager whose primary responsibility is HRM, was the one who filled in the questionnaire.

Characteristics organization

The organization characteristics protocol consisted of questions related to the branch of industry, size and age of the organization, labor force characteristics, HRM practices, HRM policy, organizational environment, degree of (de)centralization and degree of formalization. The sample includes organizations from various sectors.

Table 4-1 Sample of organizations: sector

	Frequency	Percentage in this sample	Percentage according to Statistics Netherlands³
Manufacturing	7	14.3	8.6
Construction	1	2.0	12.0
Trade and hotels	3	6.1	38.6
Transport and information	2	4.1	5.2
Professional service	12	24.5	24.4
Health care	3	6.1	7.9
Public service	14	28.6	12.0
Energy	3	6.1	0.1
Other	4	8.2	
Total	49	100	

Individual level perceptions

The second element of our study was a survey amongst individual employees. The survey consisted of questions about individual characteristics and job characteristics, employee and employer obligations and the fulfillment of these obligations, commitment and intention to leave.

In total 2099 respondents filled out the questionnaire. 67.2 % were male and 32.8% female. Comparing demographics on male/female, this sample resembles the population demographics as reported by the organizations (68.7 % male versus 31.3 % female). The education level of the respondents was relatively high: 43 % of the respondents had a higher professional or university education. 71.6 % of the respondents worked in non-leadership positions. Most employees were working in open-ended contracts (86.8%), of which 80% on fulltime basis.

³ Source: Statline 2000 (the online database of Statistics Netherlands)

Sample considerations

Although the sample was not entirely representative for the Dutch situation, it includes a diverse sample of organizations and employees. For the focus of our research (exploring relationships), representativeness of our sample for the Dutch population is not required.

In order to be able to generalize our findings concerning the relationship between the variables of interest it is required that there is enough variation in the specific variables we are interested in (which is the case as will be presented in the following sections).

Concerning the required sample size, to be on the safe side in multi-level research one needs at least 30 organizations with 30 individuals per organization to make sure that the organizational level variance is not underestimated (Maas & Hox, 2000). This condition is satisfied because we collected data of 49 organizations, with approximately 40 individual employees per organization.

4.5 Individual level measurement: psychological contract

In this research we are studying the psychological contract in line with the conceptualization of Rousseau. In chapter 2 we defined the psychological contract as: “*an individual’s belief, shaped by the organization, regarding reciprocal obligations*”. According to Rousseau (1990:309), psychological contracts differ from the more general concept of expectations in that contracts are promissory and reciprocal, offering a commitment to some behavior on the part of the employee, in return for some action on the part of the employer. We operationalized the psychological contract in line with this conceptualization of Rousseau (1990), as can be seen in table 4-3. The specific items were translated in Dutch and tested by Schalk & Freese (1997).

Scale construction

Psychological contracts consist of three elements, individual perceptions regarding individual obligations towards the organization, perceived obligations of the organization, and the perceived fulfillment or violation of the organization’s obligations.

In line with this definition of Rousseau and previous research, we constructed three scales of the psychological contract items. As can be seen in table 4-2 the reliabilities of the scales (Cronbach's alpha's) were sufficiently high. These three scales were confirmed by evidence gained from factor analysis.

Table 4-2 Scale construction psychological contract

	Scale		
	Obligations employee	Obligations employer	Psychological contract fulfillment Dependent variable
Range	1-5	1-5	1-5
Mean	3.7	4.0	3.0
SD	0.48	0.48	0.55
Nr. of items	10	10	10
Minimum	1.6	1	1
Maximum	5	5	5
Cronbach's alpha	0.71	0.82	0.84
Valid Observations	2095	2096	2086

The first part of the psychological contract measure consists of 10 perceived employee obligations, asking respondents (on a five-point scale ranging from 1 “not at all”, to 5 “very highly”) to what extent they believe they are obliged to provide the organization with, for example, the following items: willingness to accept a transfer; to provide good service; voluntarily perform non-obliged tasks; working extra hours; to deliver good work in terms of quality and quantity.

The second part consists of 10 perceived employer obligations, asking the respondents (using the same five-point scale) to what extent they believe their employer was obliged to provide them with for example the following issues: training and development; respect; candid and fair treatment; job and income security. The content of the psychological contract consists of the various perceived employer and employee obligations.

In line with this Rousseau-measure, we used a multi-item measure of perceived fulfillment (or breach/violation⁴), which is the third part of the psychological contract measure, consisting of 10 items, asking the degree to which respondents perceive employers to have (not) fulfilled their obligations on a five point scale from 1 “less than expected” to 5 “more than expected” (see table 4-3).

Consistent with previous research (e.g. Robison & Rousseau, 1994; Turnley & Feldman, 2000) the majority of respondents (50.4 %) experienced some degree of violation (a score of less than 3 on the 5-point scale). The measure of psychological contract fulfillment provides us with a good indicator of the degree of psychological contract violation (as discussed in chapter 3). In general we assume, the higher the score of fulfillment, the lesser the degree of psychological contract violation.

⁴ . As discussed in chapter 3, we do not make a distinction between breach and violation. We will use the terms breach and violation both for indicating a situation in which employees perceive the obligations of the employer as not being completely fulfilled.

Table 4-3 Overview indicators psychological contract

Psychological Contract measures
Employee obligations
Work well with others
Accept external transfer
Provide advance notice if taking a job elsewhere
Protect confidential information
Provide good service
Volunteer to do non-required tasks
Work extra hours
Accept internal transfer
Not support competitors
Deliver good work quality and quantity
Employer obligations
Job that is challenging and stimulating
Opportunities for promotion
Training and development
Good work climate
Respect
Open and direct communication
Candid and fair treatment
Bonuses based on performance
Job and income security
A competitive salary
Fulfillment employer obligations
Job that is challenging and stimulating
Opportunities for promotion
Training and development
Good work climate
Respect
Open and direct communication
Candid and fair treatment
Bonuses based on performance
Job and income security
A competitive salary

4.6 Organizational level measurement: HRM, structure and context

In line with Spence (1973) and Rousseau (1995), we defined structural signals as observable characteristics attached to the organization that are subject to manipulation by organizations and which are used to convey commitments and offer inducements for present and future behavior. This definition includes elements of organizational structure as well as HRM. First we provide an overview of the various elements of organizational structure and organizational context and after that we provide an overview of the measure of HRM and the measures of the three models we consider in this study.

4.6.1 Measures of organizational structure

Regarding organizational structure we focused in line with the work of Mintzberg (1979) on the indicators that are most often used, namely the degree of decentralization and formalization. These measures were based on the work of Hoeksema (1995) who translated the original scales of Miller & Droge (1986) into Dutch.

Decentralization

According to Pugh et al. (1963: 304) “*(De)centralization concerns the locus of authority to make decisions affecting the organization*”. The measure of decentralization consists of 11 items. The respondents have to indicate at what level the authority to make certain decisions is located, on a 6 point scale ranging from “0 = level above that of chief director; 1= chief executive; 2 = division/functional manager; 3 = sector or sub-department head; 4 = first level supervisor; 5 = operating core” (see table 4-4). Examples of decisions were the number of workers required; whether to employ a worker; internal labor disputes; dismissal of a worker; allocation of work among available workers.

Table 4-4 Indicators of the degree of (de)centralization

Indicators of degree of (de)centralization	
a. the number of workers required	g. dismissal of a worker
b. whether to employ a worker	h. methods of personnel selection
c. internal labor disputes	i. work methods to be used
d. overtime to be worked at shop level	j. machinery or equipment to be used
e. delivery dates and priority of orders	k. allocation of work among available workers
f. production plans to be worked on	

Scale construction

In line with Miller & Droge (1986) and Hoeksema (1995) we constructed a scale of (de)centralization by computing the mean of the total of scores of the underlying items. The higher the score on this measure, the more decentralized the organization. The reliability of the scale was sufficiently high (Cronbach's $\alpha = 0.82$) as presented in table 4-6.

Formalization

According to the definition of Pugh et al. (1963:303) formalization distinguishes to which extent communications and procedures in an organization are written down and filed. The measure of degree of formalization consists of 5 items (as can be seen in table 4-5). Respondents are asked which documents are used in their organization, for example: who received information booklets about, for example, security, working conditions; who received an organization chart; for what functional levels written job descriptions were made; whether the organization had a written business policy.

Table 4-5 Indicators of the degree of formalization

Indicators of Formalization	Scale
a. written contract of employment	Dichotomous (yes/no)
b. information booklets treating, for example security, working conditions, etc., are given to: - no one - only a few persons - many - all	4 point scale, in which 0=no one. And 3=all

c. an organization chart is given to: - chief executive only - two top executives - C.E. and most division or department heads - all supervisors	4 point scale, in which 1= chief executive only, and 4 = all supervisors
d. written job descriptions are made for:	
- direct production workers	Dichotomous (yes/no)
- clerical workers	Dichotomous (yes/no)
- supervisors	Dichotomous (yes/no)
- specialists	Dichotomous (yes/no)
- chief executive	Dichotomous (yes/no)
e. In your firm is there:	
- a written business policy	Dichotomous (yes/no)
- a written manual of procedures and fixed rules	Dichotomous (yes/no)
- written operating instructions to workers	Dichotomous (yes/no)

Scale construction

In line with Miller & Droge (1986), we constructed a scale of formalization by adding up all scores on the total of 11 items of the five subscales. The higher the score on this measure, the more formalized the organization. The reliability of the scale was acceptable (Cronbach’s alpha = 0.67) as presented in table 4-6.

Table 4.6 Descriptives of the organizational level structure scales

	Decentralization	Formalization
Range	0-5	1-16
Mean	3.0	14.6
SD	0.56	2.0
Min	1.82	6
Max	4.09	16
Nr. Of items	11	11
Cronbach’s alpha	0.82	0.67
Valid observations	39*	46

* defined for organizations that answered at least 9 of the 11 items

4.6.2 Measurement of context

Regarding possible contingency factors, we focused in line with the work of Mintzberg (1979) on the indicator that is most often used, namely the degree of uncertainty. The measure was based on the work of Hoeksema (1995) who translated the original scales of Miller & Droge (1986) into Dutch.

Degree of uncertainty

Degree of uncertainty consisted of 4 items. Uncertainty is a measure of the organization's external environment and reflects the degree of change and unpredictability in market-related and technological dimensions (Miller & Droge, 1986: 547). We asked respondents to indicate the situation of the organization regarding the following items (table 4-7).

Table 4-7: Indicators of the degree of uncertainty

Our organization rarely has to change its activities to keep up to date	1 2 3 4 5	Our organization must change its activities continually to keep up to date
The rate at which our services becomes obsolete is very slow		The life-cycle of our services is very short
Assignments and wishes of customers are easy to predict		Assignments and wishes of customers are difficult to predict
Our working methods are not subject to very much change		Our working methods change continually and often in a major way

Scale construction

In line with Miller & Droge (1986) we constructed a scale of uncertainty by computing the mean of the total of scores on the underlying items. The higher the score on this measure, the more uncertain the environment of the organization. As presented in table 4-8 the reliability of the scale (Cronbach's alpha = 0.80) was sufficiently high.

Table 4-8: Descriptives of degree of uncertainty

	Uncertainty
Range	1-5
Mean	2.9
SD	0.96
Min	1
Max	5
Nr. Of items	4
Cronbach's alpha	0.80
Valid observations	43

4.6.3 Measures of HRM

In the previous chapter we distinguished between three approaches towards studying structural signals, namely two universalistic approaches and a configurational approach. In this section we provide an overview of the specific measures of HRM in line with these three approaches.

As stated in chapter 3, HRM consists of various areas or domains. To capture these domains, we based the measurement of HRM on the activity list developed by Buitendam (1979). This list of activities was used by Paauwe (1989) in his study in which he employed a configurational perspective towards HRM and by Van Bastelaar & Van Beers (1982) in studying stress within organizations and the role of HRM or personnel department. The items cover the four domains of HRM as presented in Chapter 3. An important advantage of this list of practices is that it specifically applies to and is tested in a Dutch context (Van Bastelaers & Van Beers, 1982). Although the list of Buitendam is developed in 1979, it includes the major practices which are considered to be HPW practices or commitment enhancing practices, which are the focus of contemporary research towards the relationship between HRM and performance (as the degree to which HRM departments pay attention to or accompany training, communication, job rotation, employee benefits, job rotation and so on). The list consists of 24 items and is presented in table 4-9. Respondents had to indicate some form of presence/absence of HRM practices on a three point scale, ranging from “happens regularly” to “happens incidentally” to “never or almost never happens.”

Table 4-9 Indicators and descriptions HRM

Indicator	Definition
1. Staff planning: long	Estimation of staff need quantitatively and qualitatively, over a period of a half year or longer
2. Staff planning: short	Estimation of staff need quantitatively and qualitatively, over a period of less than 6 months
3. Recruitment and selection	Identification of sources of potential workers outside the organization using recruitment and selection methods
4. Stakeholder organizations	Establishing and maintenance of relations with stakeholders organizations (employers - and employee organizations) concerning the determination of employment conditions
5. Preparation of labor agreements	Designing of (components of) the package of employment conditions or of employment regulations (for example reward -, work - or function classification systems); preparation of negotiations with stakeholder organizations
6. Labor agreements	Application of and/or the control on the implementation of labor agreements. execution of pension schemes, social insurance legislation, gratifications, savings schemes, profit-sharing, etc.
7. Job classification	Job analysis, task description, work - and function classification
8. Staff appraisal	Application of and/or assistance in appraisal procedures
9. Placement	Placement, reassignment, dismissal and procedures
10. Task-oriented training	Instruction, specific education for work, apprentice systems
11. General training	Introductory training and shaping of non-managerial staff; social development training for young employees (not task-oriented); study advice
12. Training and development of managerial staff	Management training and - development (leadership programs etc.)
13. Careers	Career planning, career support, job rotation; partly based on staff appraisal and/or potential assessment
14. Social support	Individually based personnel support, social work, personal conversations, support of foreign employees etc.
15. Analysis personnel data	analysis of data from the personnel data bases for training, courses; to localize and fight sickness absence, turnover, etc.
16. Social research	Design and/or execution of research, for example labor market analyses, communication research, attitudinal surveys
17. Task structuring and job consultation	Development and/or application of task - and responsibility enlargement and/or discussion of progress

18. Organizational development	Support of organizational change processes, group - and/or departmental consultation, internal organizational consultancy
19. Development and formulation of social policy	Formulation of social policy, social objectives or directives
20. Works council	Organization and support of works council work (preparation election, secretary function, shaping activities for work council members)
21. Contacts with trade unions	Contacts with trade union representatives concerning the company situation and specific subjects such as application of labor agreements, dismissal procedures, reorganizations
22. Working conditions	Activities related to the physical and mental well-being work safety etc.
23. Internal communication and information	Introduction booklets, company magazine, notice boards, suggestion box, informative (personnel) meetings
24. Personnel care	Housing, canteen, jubilees, sick-call, entertainment activities, personnel transport

Universalistic approaches

Amount of HRM practices

With regard to the first approach, the best practices or universalistic approach, we concluded that every added HRM practice provides additional information regarding the (fulfillment of) organizational obligations and what employees are expected to contribute in return. This information is relevant for employees' assessment of fulfillment of the organization's obligations, thus leading to less violation of these expectations. Thus the more HRM practices, the more signals or information sent by the organization, the less violation of psychological contracts.

Scale construction

We operationalized this measure of HRM (in line with the work of amongst others Guest & Conway, 2002) by adding the number of HRM practices employed by the organization, ranging from 0-24 practices, resulting in the HRMCOUNT measure. This scale counts how many of the 24 HRM activities are employed regularly. For descriptives of this scale see table 4-10.

Table 4-10 Descriptives of HRM COUNT scale

	HRMCOUNT
Range	0-24
Mean	14.7
SD	4.22
Min	3
Max	22
Nr. Of items	24
Valid observations	43

HRM Commitment

The second universalistic approach focuses on commitment practices. The work of Buitendam (1979) and Van Bastelaers & Van Beers (1982) provides us with an overview of practices in four domains of HRM (see table 3-1). Organizations focusing on commitment HRM consciously pay attention to and invest in their human capital. HRM practices are aimed at motivation of employees by increasing their skills and involvement.

In this study commitment HRM is defined in line with the work of amongst others MacDuffie (1995) and Becker & Huselid (1999), as the attention paid to the two domains of Van Bastelaer & Van Beers (1982): Development of HRM policy and organizational development and Work systems (see table 4-11).

Table 4-11 Overview indicators of HRM commitment

Domains	Items	Descriptives
Work systems:	10. taks-oriented training 11. general training 12. training and development of managerial staff 14. social support 24. personnel care	Nr of items: 9 Min: 1.00 Max.: 2.28 Mean: 1.53 S.D.: 0.32
Development of HRM policy and organizational development	16. social research 17. work design and consultation 18. Organizational development 19. development and formulation of social policy	

Scale construction

We have defined HRM commitment as consisting of the practices of the domains: Development of HRM policy and Work system. We calculated HRM commitment by computing the mean of these two domains. This HRM commitment variable (hrmcom) is used in further analysis of the relationship between HRM and psychological contract violation.

Configurations

For building a model capturing the configurational fit approach we developed ideal types of combinations based on the work of Mintzberg (1979), Paauwe (1989), Verborg (1998) and Pichault & Schoenaers (2003) consisting of: formalization, decentralization, degree of uncertainty and HRM commitment. In line with these studies, we provided an overview of the measurement of the ideal types that will be considered in this research (see table 4-12).

Table 4-12 Ideal types, measurement of four configurations (same as table 3-5)

	Simple Structure	Machine Bureaucracy	Professional Bureaucracy	Adhocracy
Degree of Formalization	Low	High	High	Low
Degree of Decentralization	Low	Low	High	High
Degree of Uncertainty	High	Low	Low	High
Focus on Commitment HRM	No	No	High	High

Scale construction

We first calculated cluster means for the four Ideal Types. To control for the influence of divergence in ranges of the four scales, we standardized the four scales to scales with a similar range (min=0, max=5). The extreme values (theoretical maximum and minimum) were used to indicate the initial clusters (simple structure, machine bureaucracy, professional bureaucracy and adhocracy).

Table 4-13 Initial cluster centers

	Machine Bureaucracy	Professional Bureaucracy	Adhocracy	Adhocracy
Degree of Formalization	0	5	5	0
Degree of Decentralization	0	0	5	5
Degree of Uncertainty	5	0	0	5
Focus on Commitment HRM	0	0	5	5

Based on these ideal types (table 4-13), we can identify clusters of organizations that actually resemble these ideal types. We performed a k-means cluster analysis procedure, which is a cluster analysis in which the number of clusters is decided in advance. Subsequent clustering leads to optimization of the predefined clusters with the data. As a result of incomplete questionnaires on the variables of interest, not all organizations were taking into consideration resulting in 14 organizations missing).

Table 4-14 Number of organizations in each cluster

Cluster	Simple structure	0
	Machine bureaucracy	2
	Professional bureaucracy	31
	Adhocracy	2
Valid		36
Missing		14

This resulted in the final cluster centers (as can be seen in table 4-15).

Table 4-15 Final cluster centers

	Machine Bureaucracy	Professional Bureaucracy	Adhocracy
Degree of Formalization	4.09	4.72	4.06
Degree of Decentralization	2.41	3.06	3.36
Degree of Uncertainty	3.01	2.03	5.00
Focus on Commitment HRM	1.98	3.79	4.75

For each organization, we then calculated a variable, measuring the distance between the closest ideal type and the actual situation of the organization. This distance variable (dis1) with a Min. = 2.68, Max. = 5.36, Mean = 4.01 (SD 0.67) is used in further analysis the relationship between this model and psychological contract violation.

4.7 Control variables

In research on the psychological contract we found (theoretically or empirically based) indications of associations between several variables and the psychological contract. Because in this study we are interested in the influence of characteristics of organizations on the psychological contract (violation), we have to control for the influence of other relevant variables on the psychological contract.

Based on this previous research (as presented in chapter 2) we can distinguish between the following potentially relevant control variables on which we have information available:

Table 4-16 Potential control variables

Individual level	Organizational level
<ul style="list-style-type: none">-Gender-Age-Level of education-Union membership-Contract status-Position: manager/ worker-Years of work experience-Years of work experience in this organization-Years of work experience in this function	<ul style="list-style-type: none">-Sector-Age organization-Size (truncated at 150)-Level of education (share of employees with HBO/VO)-Degree of uncertainty-Degree of decentralization-Degree of formalization

The decision whether to include each of these potential control variables is based on an explorative analysis as presented in the following chapter.

4.9 Conclusions

In this chapter we provided an overview of the definitions, measurements and indicators for our concepts, thereby operationalizing the various constructs of this research. Because the specific nature of our research approach requires an analytical strategy which is not very common in contemporary research on the psychological contract or HRM, in this chapter we discussed our analytical strategy resulting in our research model and the collection of our sample. In the next chapter we will provide the results of our analysis.

CHAPTER 5 RESULTS

5.1 Introduction

The aim of this chapter is to answer the research questions and to test the hypotheses as presented in the previous chapter. The first section focuses on preparing the data for multi-level analysis (5.2). Before fitting the three models for answering our hypotheses (sections 5.5 – 5.7), we first determine the so-called empty model (5.3) and two baseline models (5.4). The empty model is used to determine to which extent the variation in the dependent variable (fulfillment) is related to individual level and organizational level characteristics. When the empty model is extended with relevant control variables, it changes into a baseline model. By comparing the results of the final models with the results of the relevant baseline models, we will be able to test several of our hypotheses. After this, we present the three final models. In section 5.5 we develop the random intercept model for the universalistic approach. In section 5.6 we consider the random intercept model for the commitment approach and in section 5.7 the configurational approach. In section 5.8 we discuss general comparisons of the outcomes of the three estimated models.

Data considerations

Alternative scaling of variables

To facilitate the interpretation of the intercept term, we can decide on alternative scales for the predictors. To be able to interpret the estimate of the intercept as ‘the expected value for the dependent variable (fulfillment) for a randomly drawn individual in a randomly drawn organization’, we used the alternative scaling option grand-mean centering. When a variable is centered around the grand mean, the grand mean is subtracted from each individual score on that variable. In our dataset we grand mean centered the HRM scale and the following organizational level control variables: age of an organization, organizational size, level of education, degree of uncertainty, degree of decentralization and the degree of formalization (see table 5-1).

Table 5-1 Overview of variables and alternative scales

	Individual level	Organizational level
Dependent variable	-Fulfillment/violation of obligations [^]	
Independent variables	-Obligations employee (independent variable) -Obligations employer	-HRM activities +/- HRM commitment +/- Configurations
Control variables	-Gender* -Age# -Level of education** -Union membership* -Contract status -Position: manager/ worker * -Years of work experience # -Years of work experience in this organization# -Years of work experience in this function#	-Sector** -Age organization (truncated at 150)+# -Size+# -Degree of uncertainty + -Degree of decentralization+ -Degree of formalization+

* = Dummy variable

** = Categorical variable

+ = Centered around the grand mean

= To allow for the possibility of a non-linear relationship, the logarithm is taken into consideration

[^] The measure of psychological contract fulfillment provides us with an indicator of the degree of psychological contract violation. In general we assume, the higher the score of fulfillment, the lesser the amount of psychological contract violation.

Within and between group components of individual level variables

In multi-level models it is common to distinguish a within and between group component for individual level variables. This is especially relevant when one expects that the within-group effect on the dependent variable may differ from the between-group effect. If this is the case, and if the relevant variable shows both within-group and between-group variation, one could decide to split the specific variable into a within-group and a between-group component. The between-group component would be obtained by aggregating the variable, while the within-group component would be defined as the difference between the individual score and the average organizational score.

In this study there are no (theoretically founded) a priori arguments that suggest that the within-group effect may differ from the between-group effect for the variables which we focus mainly on (i.e. perceived employee obligations and perceived obligations of the organization), so we will not explore this option in this study⁵.

Correlations

For all variables included we inspected the correlations. Since high correlations may indicate strong bivariate relationships and result in multicollinearity in regression analysis, we particularly looked for high correlations. Only one correlation turned out to be above 0.50: the correlation between formalization and the (amount of HRM practices) *hrmcount* measure (0.56). This high correlation is a result of the influence of 1 outlier. We excluded this outlier from further analysis, resulting in a lower correlation of 0.40.

Open ended contracts

Several studies investigate the difference in work and psychological contract perceptions between employees with open ended and a variety of flexible contracts (e.g. Koene & Van Riemsdijk, 2005). HRM studies suggest that different HRM systems exist for different types of contract (e.g. Lepak & Snell, 1999). We limit our analysis to employees with open-ended employment contracts. More than 86 % of our respondents are working in open-ended contracts. From a theoretical point of view, this has the advantage that we do not have to control our results for the type of contract (i.e. our sample consists of a homogeneous group in this respect). From a more practical point of view, we are faced with the limitation that, on organizational level, our dataset does not include information on whether HRM policies and/or practices differentiate between types of contract.

The structuring of the following sections is based on insights derived from the work of Hox (2002), Singer (1998) and Snijders & Bosker (1999) which provided us with a practical line of reasoning for fitting the various models to our data.

⁵ For some of the control variables, arguments may exist that suggest different within- and between group effects. However, since these control variables are not the primary focus of our research, we will not elaborate this issue.

5.3 The empty model

The first model to develop and analyze is the so called empty model or unconditional means model. This model does not contain any explicit explanatory variable. It is the starting point for the analysis because it provides us with the basic partition of variability in the data between the two levels (Snijders & Bosker, 1999: 46).

The empty model is used to estimate both the fixed effect (the average score on fulfillment) and the within and between group difference. These within and between group differences can be used for calculating the intraclass correlation, which represents the degree of dependency or the share of the total variance that is related to variation between organizations. The most basic condition that has to be satisfied when analyzing data with multi-level techniques is that there should be enough between organizational variance in the dependent variable (intraclass coefficient > 0). This condition can be evaluated by estimating the empty model. Standard statistics like OLS do not take into account the weighting of the various organizations, but instead take the average of all organizations, thereby assuming an intraclass correlation of 0. An intraclass correlation that is greater than 0, indicates that standard statistics would likely lead to misleading results (Singer, 1999: 330), as we will show in section 5.8.

Since the empty model does not contain any explanatory variable, it can be expressed by the following equation:

$$Y_{ij} = \gamma_{00} + U_{0j} + R_{ij} \quad (5.0)$$

Interpretation of the equation

Psychological contract fulfillment is in this model considered as a linear combination of: a grand mean γ_{00} ; a set of deviations from that grand mean of organizational j (U_{0j}), which represents the random error associated with the organizational level; and a random error associated with individual i within organization j , or the random effect at the individual level (R_{ij}).

γ_{00} is the population grand mean or the intercept, representing the expected value of the outcome measure (fulfillment) for a randomly selected individual (employee) i from a randomly selected organization j . Organization j has thus a true mean of $\gamma_{00} + U_{0j}$ and each individual within this organization deviated for this true mean by R_{ij} .

This model contains three parameters that can be estimated: a fixed effect (γ_{00}) and two variance components, namely the variance between organizational means (τ_{00}) and variance among individuals within organizations (σ^2). The total variance in fulfillment of any individual employee equals $\sigma^2 + \tau_{00}$. The empty model thus does not explain any variance in the dependent variable, but rather decomposes the variance in two independent parts, a between organization and a within organization part. This enables us to estimate the intraclass correlation as follows: $\rho = \tau_{00} / (\tau_{00} + \sigma^2)$.

Results

The results of fitting this unconditional means or empty model are presented in table 5-2.

Table 5-2 Estimates of fixed effects and covariance parameters for the empty model

Model:	M0: Empty model	
Fixed part:		
Predictor		
Intercept	coefficient 2.94***	standard error 0.03
Random part:		
σ^2	0.26	0.01
τ_{00}	0.04	0.01
Test:		
-2 Log Likelihood	2771.551	

Fixed part

The estimate of the intercept γ_{00} is 2.94, which can be interpreted as the expected value for fulfillment (on a scale ranging from 1-5) for a randomly drawn individual (employee) i in a randomly drawn organization j .

Random part

In this model we found that the estimated value of the random component of the model σ^2 is 0.26 (within group difference) and the estimated value of the random components of the model τ_{00} is 0.04 (between group difference). The total variance in fulfillment can be calculated by taking the sum of the between group and within group variance ($\tau_{00} + \sigma^2$), which equals 0.31. This results in an intraclass correlation of 0.14. According to Snijders & Bosker (1999:46) values between 0.05 and 0.20 are common in this type of research. This suggests that the intraclass correlation of 0.14 in our study can be interpreted as relatively high. It suggests that there is a considerable amount of variation in fulfillment that is due to organizational level effects (14%). In the following models we try to explain part of this organizational level variance by including organizational level variables, such as HRM.

Tests

When using multi-level modeling there is a main statistical assumption to be tested, concerning the independence and normality of the distribution of the random errors (Hofmann et al., 2000). Based on a plot of the random errors against their normal scores, we can conclude that this test was satisfying; the random errors were normally distributed.

In order to be able to compare the estimated models statistically based on the deviance statistics, we used the full maximum likelihood (ML) estimation procedure. The deviance of the model indicates how well the model fits the data (Hox, 2002:16).

Deviance is a function of the likelihood, and is defined as -2Log Likelihood . Since this measure does not have a maximum, the absolute value of the deviance measure does not include much information⁶. However, in the case of nested models (where one model can be seen as an elaborate version of another model) it can be used to determine whether the elaboration of the baseline model significantly increases the amount of explained variance. Models with a lower deviance fit the data better than models with a higher deviance. The deviances of nested models can be used to compare their statistic fit. A chi-square test can be performed to test whether the more general model fits significantly better than the simpler model (Hox, 2002: 16).

Conclusion

Given that there is systematic between unit variance we are able to reject the null hypothesis that organizational effects on the degree of fulfillment of an individual's psychological contract are absent.

The purpose of this chapter is to arrive at a model that is interesting for answering our main question and describes the observed data to a satisfactory extent. To test the difference between two models based on a chi-square deviance test, the models should be nested. To test the hypotheses concerning the variation explained by the variables we are interested in (HRMcount, HRM commitment, Configurations), we need to develop baseline-models which can serve as a benchmark to which the other models are compared.

The reason for not using the empty model for this purpose is that (based on theory) we will also include control variables in our final models and we want to extract only the importance of including the variable we are interested in. In the next section we gain insight into potential control variables and estimate these baseline-models.

⁶ For measures with a maximum (such as a correlation or the R²-value of a regression equation, which both have an upper bound of 1), the absolute values contain more information.

5. 4 **Baseline models**

To assess potential relevant control variables we estimated a random coefficient model, with individual fulfillment as dependent variable and obligations employee and obligations employer as individual level independent variables and the variables as mentioned in table 5-1 as potentially relevant control variables.

Control variables were included in the baseline models if they explained part of the variability of fulfillment in these explorative regressions. Due to the focus of our research question and the fact that we did not have theoretical arguments to assume random slopes, at this point we only considered random intercepts leading us to estimating a random intercept model (in section 5.8 we check for random slopes of the various models). Furthermore, to allow for the possibility of non-linear relationship between several control variables and the level of fulfillment, we calculated the logarithm of the following variables: years of work experience, years of work experience in this organization, years of work experience in this function, age organization, size organization.

We decided to include the control variables in our baseline models if they were significant at a 5% confidence level. Furthermore, we decided to include the variables ‘degree of decentralization’ and ‘degree of uncertainty’ based on theoretical arguments (important variables of interest in this study as discussed in chapter 3), leading us to the following control variables:

Table 5-3: Overview of control variables

Individual level control variables	Organizational level control variables
<ul style="list-style-type: none">- years of work experience in this function- employee age⁷	<ul style="list-style-type: none">- size of the organization- age of the organization- level of formalization- sector- degree of uncertainty- degree of decentralization

Including these control variables lead to the baseline models, with which we can compare more complex models for answering our hypotheses. Although the empty model provided us with a starting point for multi-level analysis, we need two extended models to which we can compare the more complex models (amount of HRM practices (HRMcount)/ HRM commitment/ configurations).

The reason for estimating two models lies in the fact that when comparing models, models should be nested in structure and the complex models are not nested in each other (i.e. have different baseline models). Whereas in the HRMcount and HRM commitment model the variables degree of decentralization, formalization and uncertainty are considered as control variables, in the configurational approach they are considered as part of the explanatory variable. This leads us to estimating two baseline-models (see table 5-4).

The first baseline model will be used to compare the models estimated for answering the first two hypotheses concerning the relationship between the amount of HRM practices and HRM commitment systems and the degree of psychological contract violation. The second model (baseline – model configuration) will be used as a baseline to which we can compare the model estimated for answering the third hypothesis. The first baseline model is nested in the second baseline model. The main statistical assumption, concerning the independence and normality of the distribution of the random errors (Hofmann et al., 2000) was tested and satisfying.

In the following sections we estimate the random intercept models answering the hypotheses as formulated in the previous chapter.

⁷ Although the logarithm of age was significant in the model which included all the control variables, in the baseline model it was not significant.

Table 5-4 Estimates of fixed effects and covariance parameters for the baseline-models

	Baseline -model HRM		Baseline -model Configuration	
Fixed part:	coefficient	standard error	coefficient	standard error
Predictor				
Intercept	1.94***	0.32	1.70***	0.30
Individual level				
Obligations employee	0.33***	0.03	0.36***	0.03
Obligations employer	-0.05	0.03	-0.05	0.03
Age employee	0.06	0.07	0.06	0.06
Years of experience in this function	-0.08***	0.02	-0.08***	0.02
Organizational level				
Size organization	-0.09*	0.04	-0.04	0.03
Age organization	0.08	0.04	0.06	0.03
Degree of formalization	-0.06***	0.02		
Degree of decentralization)	0.11	0.06		
Degree of uncertainty	-0.00	0.04		
Sector		0.06#		0.10#.
Random part:				
σ^2	0.23	0.01	0.23	0.01
τ_{00}	0.02	0.01	0.03	0.01
Tests				
-2 log Likelihood	1749.877		2191.880	
AiC	1789.877		2225.880	

* p<0.1

** p< 0.05

*** p<0.01

level of significance of F-test

5.5 Random intercept model 1

In this model we are interested in the relationship between the amount of HRM practices employed (HRMcount) and the degree of psychological contract violation of individuals. With this model we want to test the first hypothesis: The more HRM practices, the less psychological contract violation.

Interpretation of the output

Fixed effects (based on t-test)

The parameter estimate of the organizational level explanatory variable HRMcount is 0.04, which is significantly positive at a 1% confidence level. This tells us that a unit increase in the variable HRMcount results in an increase of 0.04 in the dependent variable fulfillment. Stated differently: for each added HRM practice the average level of violation goes down with 0.04 (which is 1% of the possible range in fulfillment). Because the actual values of the scale of the amount of HRM practices ranged from 3-22, the predicted difference between the organization with the least HRM practices and organizations with the most HRM practices is ($19 \times 0.04 =$) 0.76 point on the violation score (which is a difference of 19 % in degree of fulfillment).

Random effects

In this model we found that the estimated value of the within-group difference $\sigma^2 = 0.23$ (compared with to the baseline model 0.23) and the estimated value of between-group difference $\tau_{00} = 0.01$ (compared with the baseline- model 0.02). These findings indicate that including the variable the amount of HRM practices explains part of the (organizational level) variance in fulfillment.

Tests

When comparing models to their baseline-models, t-test and deviance-test are being used. We only reject the null-hypotheses if the t-test as well the deviance test is significant. To be precise, the deviance test can be used to test the null hypothesis that for each of the additional variables⁸ the model parameter is equal to zero. Under this condition, the difference in deviance between the two nested models has a chi-square distribution with degrees of freedom equal to the number of additional parameters in the enlarged model. As it turns out, $\chi^2 = (1749.877 - 1732.026 =) 17.851$. Since the enlarged model only includes one additional variable, this test statistic has one degree of freedom.

⁸ Additional as compared to the baseline model

The associated probability level equals $p < 0.000$, and we can thus conclude that this model fits the data better than the baseline-model. Including the amount of HRM practices adds significantly in explaining the degree of psychological contract violation, compared to the variables already included in the baseline-model. For this model, both the t-test as well as the deviance test are significant, which indicates that the null-hypothesis can be rejected.

The proportion of total variance explained by this model at organizational level is 0.01. In comparison with the baseline model, the HRM count variable accounts for 62% of the variance at organizational level that remains after the control variables have been added. This means that 62% in the variation of psychological contract fulfillment that is due to organizational level effects can be influenced by the amount of HRM practices. The consequence of our operationalization of HRM in which we used an additive index, is that our results suggest HRM practices have independent non-overlapping effects on the psychological contract. Furthermore, using more practices results in a lower level of violation.

The question arises if this is a direct effect or whether there are indirect effects of HRM on psychological contract violation, via perceived employee and/or employer obligations. Based on the results of the analyses in which the dependent variable is perceived employee obligations and the analysis in which the dependent variable is perceived employer obligations (as presented in appendix 3A and 3B), we are able to conclude that there are indications for a relationship of HRM with employee obligations. This relationship indicates that the more HRM practices in place, the more employees perceive they have obligations towards the organization. We did not find indications for such a relationship between HRM and employer obligations.

5.6 Random intercept model 2

In the second model we estimated we are interested in the relationship between commitment enhancing HRM (hrmcom) and the degree of psychological contract violation of individuals. With this model we want to test the second hypothesis: The more commitment focused HRM, the less psychological contract violation.

This model is formulated as follows:

$$fulfil_{ij} = \beta_{0j} + \beta_1 j(obl_work_{ij}) + \beta_2 j(obl_org_{ij}) + \beta_3 j(age_log_{ij}) + \beta_4 j(logwfun_{ij}) + R_{ij} \quad (5.2a)$$

$$B_{0j} = \gamma_{00} + \gamma_{01}(\text{logsiz_}m_j) + \gamma_{02}(\text{logfag_}m_j) + \gamma_{03}(\text{formal_}m_j) + \gamma_{04}(\text{decent_}m_j) + \gamma_{05}(\text{uncert_}m_j) + \gamma_{06}(\text{sector_}j) + \gamma_{07}(\text{hrmcom_}m_j) + U_{0j}$$

Results

The results of fitting this random intercept model are presented in the following table.

Table 5-6 Random Intercept Model 2

Model: M2 HRM commitment model		
Fixed part:	coefficient	standard error
Predictor		
Intercept	1.73***	0.32
Individual level		
Obligations employee (obl_work)	0.33***	0.03
Obligations employer (obl_org)	-0.05	0.03
Age employee (age_log)	0.05	0.07
Years of experience in this function (logwfun)	-0.08***	0.02
Organizational level		
Size organization (logsiz_m)	-0.11***	0.04
Age organization (logfag_m)	0.11***	0.03
Degree of formalization (formal_m)	-0.08***	0.02
Degree of decentralization (decent_m)	0.06	0.08
Degree of uncertainty (uncert_m)	0.01	0.05
Sector (sector)		0.06#
HRM commitment (hrmcom_m)	0.31 ***	0.11
Random part:		
Σ^2	0.23	0.01
τ_{00}	0.01	0.00
Tests:		
-2 Log Likelihood	1742.476	
AIC	1784.476	

* p<0.1
** p< 0.05

*** p<0.01
level of significance of F-test

Interpretation of the output

Fixed part

The parameter estimate of the organizational level explanatory variable commitment HRM is 0.31, which is significantly positive (at a 1% confidence level). This tells us that a unit increase in the variable HRM commitment result in an increase of 0.31 in the dependent variable fulfillment. Stated differently: for a one-point increase in HRM commitment the average level of violation goes down with 0.31. Because the actual values of HRM commitment ranged from 1-2.28, the predicted difference between organizations which do not focus at commitment enhancing systems and organizations which do differ $1.27 * 0.31 = 0.50$ point on the violation score (which is a difference of 13% in degree of violation).

Random part

In this model we found that the estimated value of the within-group difference $\sigma^2 = 0.23$ (compared with the baseline model 0.23) and the estimated value of between-group difference $\tau_{00} = 0.01$ (compared with the baseline model 0.02). These findings indicate that including the organizational level variable commitment HRM explains part of the variance in fulfillment.

Tests

Bases on the t-test and the deviance test ($\chi^2 = 7.401$; $df=1$; $p < 0.00$), we are able to reject the null hypothesis. Including the HRM commitment thus adds significantly in explaining the degree of psychological contract violation, compared to the variables already included in the baseline-model.

The proportion of total variance explained by this model at organizational level is 0.01. In comparison with the baseline model, the HRM commitment variable accounts for 29% of the variance at organizational level that remains after the control variables have been added. This means that 29% in the variation of psychological contract fulfillment that is due to organizational level effects can be influenced by the HRM commitment.

5.7 Random intercept model 3: Configurations

In the third model we estimated we are interested in the relationship between the coherence of HRM practices and organizational structure in terms of configurations and the degree of psychological contract violation of individuals. With this model we want to test the third hypothesis: The more an organization resembles the ideal type, the less psychological contract violation.

In the previous chapter we discussed how we calculated the distance measure (which was based on a cluster analysis). This distance measure represents the coherence of an organization in terms of organizational structure, context and HRM. In this third random intercept model we examine to which extent this organizational level variable can explain differences in fulfillment of individuals of different organizations

The third random intercept model can be written as follows:

$$fulfil_{ij} = \beta_{0j} + \beta_{1j}(obl_work_{ij}) + \beta_{2j}(obl_org_{ij}) + \beta_{3j}(age_log_{ij}) + \beta_{4j}(logwfun_{ij}) + R_{ij} \quad (5.3.a)$$

$$B_{0j} = \gamma_{00} + \gamma_{01}(logsiz_m_j) + \gamma_{02}(logfag_m_j) + \gamma_{03}(sector_j) + \gamma_{04}(dis1_j) + U_{0j}$$

Results

The results of fitting this model are presented in table 5-7.

Interpretation of the output

Fixed part

The parameter estimate of the organizational level explanatory variable distance (dis1) is -0.03, which is not significant, which was not as expected. Because the t-test of the distance variable is not significant we are not able to reject the null hypothesis that the effects of distance on the degree of psychological contract fulfillment do not explain part of the variance in fulfillment.

Table 5-7 Random Intercept Model 3

Model: M3 Configurational approach		
Fixed part: Predictor	coefficient	standard error
Intercept	2.01***	0.32
Individual level		
Obligations employee (obl_work)	0.33***	0.03
Obligations employer (obl_org)	-0.05	0.03
Age employee (age_log)	0.04	0.07
Years of experience in this function (logwfun)	-0.09***	0.02
Organizational level		
Size organization (logsiz_m)	-0.09**	0.04
Age organization (logfag_m)	0.07***	0.04
Sector (sector)		0.07#
Distance to ideal type cluster (dis1)	-0.03	0.04
Random part:		
Σ^2	0.23	0.01
τ_{00}	0.02	0.01
Tests:		
-2 Log Likelihood	1757.393	
AiC	1793.393	

* p<0.1

** p< 0.05

*** p<0.01

level of significance of F-test

5.8 General model comparisons

In this section we discuss the interpretation of the parameter estimates of the individual level explanatory variables as well as the control variables of the three models. Next, we statistically compare the three models. In table 5-8 we provide an overview of the (significant) estimates of the parameters of the estimated models⁹.

⁹ For all models except M3, the main statistical assumption concerning the interdependence and normality of the distribution of random errors (Hofmann et al., 2000) was tested and satisfying.

Table 5-8 Overview of the estimated models

Model:	M0: empty model		Baseline model 1		Baseline model 2		M1: HRMCOUNT		M2: HRM Commitment		M3: Configurational	
Fixed part: Predictor	Coeff.	st. error	Coeff.	st. error	Coeff.	st. error	Coeff.	st. error	Coeff.	st. error	Coeff.	st. error
Intercept	2.94***	0.04	1.94***	0.32	1.70***	0.30	1.99***	0.30	1.73***	0.32	2.01***	0.32
Individual level												
Obligations employee			0.33***	0.03	0.36***	0.03	0.33***	0.03	0.33***	0.03	0.33***	0.03
Years of work experience in this function			-0.08***	0.02	-0.08***	0.02	-0.08***	0.02	-0.08***	0.02	-0.09***	0.02
Organizational level												
HRM COUNT							0.04***	0.01	0.31***	0.11		
HRM Commitment												
Distance											-0.03	0.04
Degree of formalization			-0.06***	0.02			-0.10***	0.02				
Age organization			n.s.		n.s.		0.12***	0.03	0.11***	0.03	0.07***	0.04
Organizational size			-0.09***	0.04	n.s.		-0.14***	0.03	-0.11***	0.04	-0.09**	0.04
Random part:												
σ^2	0.26	0.01	0.23	0.01	0.23	0.01	0.23	0.01	0.23	0.01	0.23	0.01
τ_{00}	0.04	0.01	0.02	0.01	0.03	0.01	0.01	0.00	0.01	0.00	0.02	0.01
Tests:												
-1 Log Likelihood	2771.551		1749.877		2191.880		1732.026		1742.476		1757.393	
Akaike's information Criterion (AIC)	2777.551		1789.877		2225.880		1774.026		1784.476		1793.393	

* p<0.1 *** #

** p<0.05

p<0.01 level of significance of F-test

Comparison of the three models

To compare the three multi-level models, which are non-nested in structure but are based upon the same dataset, we can use the general fit index Akaike's Information Criterion (AIC), which is a measure that adjusts for the number of parameters estimated (Hox, 2002: 45). Lower values of AIC are preferred above higher values. Based on this measure the first model (HRM count) is preferred. This result is in line with our previous findings, that the amount of variance explained by this model is higher than in the other models.

Multi-level analyzing versus OLS

As expected, although the estimates of the individual level variables are somewhat similar, when comparing our results based on multi-level analysis with OLS analysis, the latter leads to very different results in organizational level variables (as can be seen in appendix 2). Standard statistics like OLS do not take into account the weighting of the various organizations, but instead take the average of all organizations, thereby assuming an intraclass correlation of 0. An intraclass correlation that is greater than 0, as in our case, indicates that standard statistics would likely lead to misleading results (Singer, 1999: 330). According to Hox (2002:5): *“Standard statistical test lean heavily on the assumption of independence of the observations. If this assumption is violated (and in multilevel data this is almost always the case) the estimates of the standard errors of conventional statistical tests are much too small, and this results in many spuriously ‘significant’ results.”*

The results on basis of OLS statistics show much higher estimates for the coefficients of organizational size, age of the organization and degree of formalization. The estimates of the HRM count and HRM commitment coefficients also show a very different picture and the distance measure of the third model shows a significant estimate of the coefficient when using OLS, while this is clearly not the case using multi-level analysis.

Interpretation of the resulting parameter estimates

Table 5-8 provides us with the (significant) regression coefficients of the explanatory and control variables. The results are very consistent, although not all outcomes are as expected. When comparing the three random intercept models M1-M3, the parameter estimate of the individual level explanatory variable perceived employee obligation is in all three models 0.33, which is significantly positive (at a 1% confidence level). This tells us that a unit increase in the variable employee obligation results in an increase of 0.33 in the dependent variable fulfillment (which is 8.25% of the possible range in fulfillment). Because the level of employee obligations is measured at a five point scale, the predicted difference between the person with the lowest level of obligations and the employee with the highest level of obligations is 1.3 point on their degree of violation.

Based on social exchange theory and notions of balance (see for instance Barksdale & Shore, 1997) we expected the relationship between the employee and employer obligations or more specifically the degree of balance between these two parts to have a relationship with the outcome variable psychological contract violation. Although we found a significant relationship between employee obligations and degree of fulfillment, we did not find a relationship between employer obligations and the evaluation of the psychological contract. Psychological contract obligations reflect future contributions and thus may or may not be fulfilled and are thus contingent upon the perceived behavior of the other party. Since fulfillment is associated with perceived employee obligations, this provides an indication that employee obligations are dependent on the degree to which the organization has fulfilled its obligations.

The parameter estimate of the individual level control variable years of work experience in this function is -0.08, which is significantly negative (at a 1% confidence level). This suggests that the more years of work experience an employee has, the more psychological contract violation the employee experiences (irrespective of possible differences in perceived employee obligations and other included variables).

We found a strong negative relationship with employee obligations (appendix 3A), so the more years of work experience, the less the employee feels he is owed to provide the organization with certain things, the more the employee expects from its organization (appendix 3B). This result is in line with existing literature on tenure, in which employees perceive reduced obligations when they work longer in the organization.

The regression coefficients of the organizational level control variables of organizational size and the age of an organization were significant in the three models, providing support for a relationship between organizational characteristics and degree of psychological contract fulfillment.

Formalization was found to have a significant relationship with degree of psychological violation. This result suggests that the more formalized the organization, the more employees perceive violations of their psychological contract. Although we did not find a direct effect of decentralization on degree of violation, we found indications of a random slope of decentralization with employee obligations (as presented in appendix 1). This suggests that the relationship between perceived employee obligations and psychological contract violation is moderated by the degree of decentralization. In other words, the relationship between perceived employee obligations and degree of perceived violation depends on the degree of decentralization of the structure of the organization.

5.9 Conclusions

The purpose of this chapter was to arrive at a model that is interesting for answering our main question concerning the relationship between HRM and the degree of psychological contract violation. In this chapter we developed and tested based on multi-level analysis three models answering three hypotheses.

The basic condition for handling our data with multi-level statistics was satisfied, in that there was an amount of variation in our dependent variable (fulfillment) that was due to organizational level effects (14%).

We decided to reject the three null-hypotheses based on whether as well the t-test of significance as the deviance test (which compares the model with its baseline model) were satisfied. We first developed a model concerning the relationship between the amount of HRM practices and the degree of psychological contract violation. The parameter estimate of the explanatory variable of interest (HRM count) was significant and the deviance test showed that including this variable did significantly add in explaining the degree of psychological contract violation compared to the variables already included in the baseline-model. Based on this insight we were able to reject the null-hypothesis. This means that the more HRM practices organizations, the less psychological contract violation.

The second model we developed concerned the relationship between commitment HRM systems and the degree of psychological contract violation. Again (based on a t-test) the parameter was significant and the deviance test showed that including this variable did significantly add in explaining the degree of psychological contract violation compared to the variables already included in the baseline-model. Based on this insight we were able to reject the null-hypothesis. This means that HRM commitment practices do explain part of the variance in psychological contract violation (although it explains less than the amount of HRM practices).

The third model we developed concerned the relationship between the coherence of structural signals (organizational structure, HRM and context: measured by the distance variable) and the degree of psychological contract violation. The regression coefficient for the organizational level explanatory variable (distance) was not significant. Based on this insight, we were not able to reject the null hypothesis that effects of the distance on the degree of violation of an individual's psychological contract are absent. In the following chapter we will elaborate on our findings and their limitations.

CHAPTER 6 DISCUSSION

6.1 Introduction

This study set out to explore the relationship of HRM and more general design factors with psychological contract violation. Because HRM is the subset of organizational design characteristics most closely related to the employment relationship the main focus of this study is on HRM.

Both literature on organizational-level HRM and performance and individual-level research on the relationship between psychological contract and employee behavior, point to the existence of a relationship between HRM and the psychological contract of employees. Most of these indications, however, are conceptually based. Consequently, various authors explicitly claim there is a need for investigating this relationship. Investigating mediating constructs in the relationship between HRM and performance such as the psychological contract can help to understand the mechanisms by which this relationship is shaped better. In terms of Wright & Nishi (2004) there is a need to open the “black-box” of the relationship between HRM and performance.

In this study we aim to open this “black box”, by focusing within the relationship between HRM and performance on the signalling value of HRM and organizational structure. Besides being instrumental in coordination and control of work in the organization, we expect HRM and organizational structure to send signals that are relevant for employees’ assessment of fulfillment of their psychological contracts. Based on a sample consisting of a cross section of 49 Dutch organizations we study the link between, on the one hand HRM and other organizational design characteristics, and on the other hand, psychological contract violation.

Because the constructs of our interest are on different levels (organizational and individual level), we based our analysis on a modeling technique that takes into account the dependence between these different levels: multi-level or hierarchical modeling. In both streams of research applying multi-level modeling and analysis is not common, although various researchers point to the importance of using this technique.

In this chapter we discuss the results of our study. Our findings indicate that there is a significant relationship between HRM and organizational design factors and the degree of perceived psychological contract violation. We first present a short overview of the main findings of our literature review and our empirical study (section 6.2). Next, we discuss these findings in detail (section 6.3). In section 6.4 we pay special attention to the operationalization of the psychological contract in light of exchange theory and notions on balance. Subsequently the limitations of our study are evaluated and the implications for future research are addressed (section 6.4). Finally, we address some implications of our results for management and organizational practice (section 6.5).

6.2 Summary of main findings

6.2.1 Research model and hypotheses

In this study our main interest is in understanding how HRM and more general design factors are related to performance by looking at the psychological contract of employees. The psychological contract can be seen as ‘the lens’ through which we study the influence of HRM and organizational structure on the employment relationship. In line with the conceptualization of Rousseau (1989/1990/1995), we defined the psychological contract as: *“an individual’s belief, shaped by the organization, regarding reciprocal obligations”*. Based on exchange theory and notions on balance and reciprocity (see chapter 2), we expect that psychological contracts are contingent upon the perceived behavior of the other party. Because of reported negative effects of not completely fulfilled psychological contracts on individual attitudes and behavior, our main focus is on violation of the psychological contract. We will use the terms violation for indicating a situation in which employees perceive the obligations of the employer as not being completely fulfilled.

Based on signalling theory, organizations are perceived by employees as sending signals concerning the employment relationship through HRM and organizational structure, thereby affecting their psychological contract. Putting insights of both streams of literature (HRM performance and psychological contract performance) and underlying theory of social exchange and signalling together, we expect HRM and aspects of organizational structure to have consequences for the degree of psychological contract violations of employees.

The main research question is characterized as follows:

What is the signalling value of HRM for employees' assessment of the degree of violation of their psychological contracts?

In our analysis of the literature we distinguish the two approaches to HRM for studying the signalling effect of HRM on the psychological contract: universalistic or 'best practices' approaches and configurational approaches. Universalistic approaches assume a relationship between HRM regardless of the internal and external organizational context. Configurational approaches take into account the degree of fit between HRM and its wider organizational context, thereby recognizing the dependence between organizational level elements.

These approaches provide different explanations for the signalling effect of HRM and organizational structure on the psychological contract of employees, leading us to the development of three hypotheses, of which two hypotheses based on universalistic approaches (amount of HRM practices and commitment HRM practices) and one hypothesis on configurational approaches (fit between HRM, structure and context):

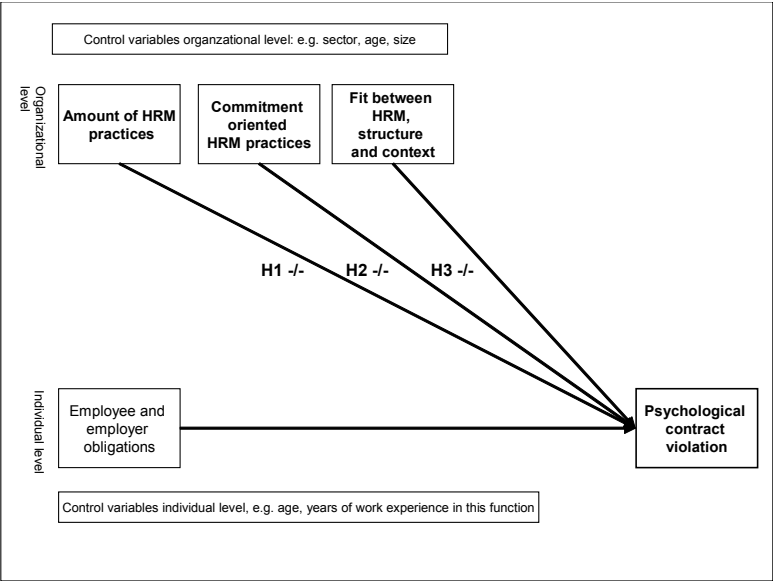
H1: The more HRM practices, the less psychological contract violation.

H2: The more commitment focused HRM, the less psychological contract violation.

H3: The more an organization resembles an ideal type, the less psychological contract violation

The constructs underlying these three hypotheses and their relationships are graphically presented in our conceptual model (figure 6-1).

Figure 6-1 Conceptual model



In the research model we distinguished two levels of analysis, the organizational and individual level.

- The individual dependent variable is psychological contract violation;
- The organizational level independent variables are the amount of HRM practices, the use of commitment oriented practices and the degree of fit between HRM, structure and context;
- The individual level independent variables are employee and employer obligations.
- Based on existing research we include several control variables, both on organizational and on individual level.

Universalistic approaches

In the first approach, following universalistic HRM thinking, we expect that every added HRM practice provides additional information that is relevant for employees' assessment of fulfillment of the organization's obligations, thus leading to less violation of these expectations. We operationalized the amount of HRM practices by counting the number of HRM practices employed by the organization.

Following the second universalistic HRM approach, the 'best commitment practices' approach, we expect that violation of the psychological contract can be explained by the degree to which the organization employs commitment oriented HRM practices. Previous literature suggests that a subset of HRM practices, the commitment HRM practices, align the interest of employees and organizations better than other practices do. Commitment HRM practices are expected to build an intensified and high quality employment relationship with the objective to optimize organizational performance. Consistent with this type of research, we defined commitment HRM as an indicator of the attention that organizations demonstrate for the subset of commitment enhancing practices (such as social support and training and development).

Configurational approach

The third approach towards studying HRM argues for the importance of coherence or fit between various internal and external organizational-level element for individual and organizational performance. The importance of fit is mentioned mainly in conceptual work on the impact of HRM on the psychological contract.

The essence of the configurational approach is that coherence between organizational elements is important, that context matters. This approach extends commitment HRM by focusing on the alignment between commitment HRM, organizational structure (in our study operationalized by the concepts of formalization and decentralization) and organizational context (in our study operationalized by the concept of degree of uncertainty).

Based on the work of Mintzberg (1979), Paauwe (1989), Verburg (1998) and Pichault & Schoenaers (2003) we develop a model for studying the configurational approach, focusing on four ideal types (or configurations).

In light of the psychological contract, these four ideal types are expected to send consistent signals, leading to less violation of psychological contracts, because employees will have less conflicting expectations of obligations. Coherence between the signals send by an organization is thus expected to be of importance.

6.2.2 Main results

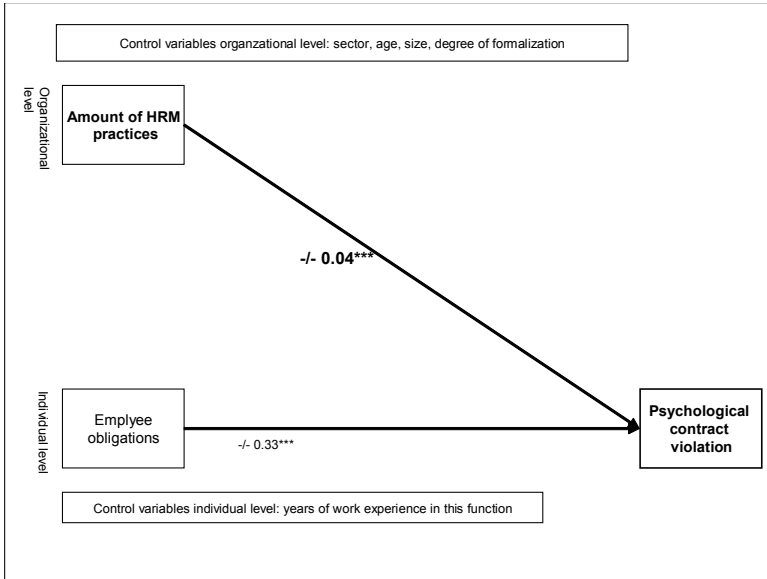
Because the hypotheses concern constructs of two levels of analysis, namely organizational level HRM and more general design factors, and individual level psychological contract, a multi-level approach is used. Multi-level analysis refers to statistical methods that explicitly take into account the relationships among constructs at multiple levels of analysis (Klein & Kozlowski, 2000).

The hypotheses are tested by multi-level modeling, regressing the dependent individual level variable perceived contract violation on the independent individual and organizational level variables (HRM, organizational structure, perceived employee and employer obligations), together with a number of control variables. Our findings show that although psychological contract violation is clearly influenced by individual and job characteristics, we can conclude that 14% of the variation in degree of psychological contract violation is due to organizational level effects. Our hypotheses are graphically presented in figure 6-1. Our findings are summarized below.

Universalistic approaches

In the universalistic approaches towards HRM we expect that regardless of internal and external context factors HRM has a (negative) relationship with psychological contract violation. We tested two universalistic approaches with two hypotheses. We first discuss the hypothesis focusing on the amount of HRM practices.

Figure 6-2 Hypothesis 1: The more HRM practices, the less psychological contract violation



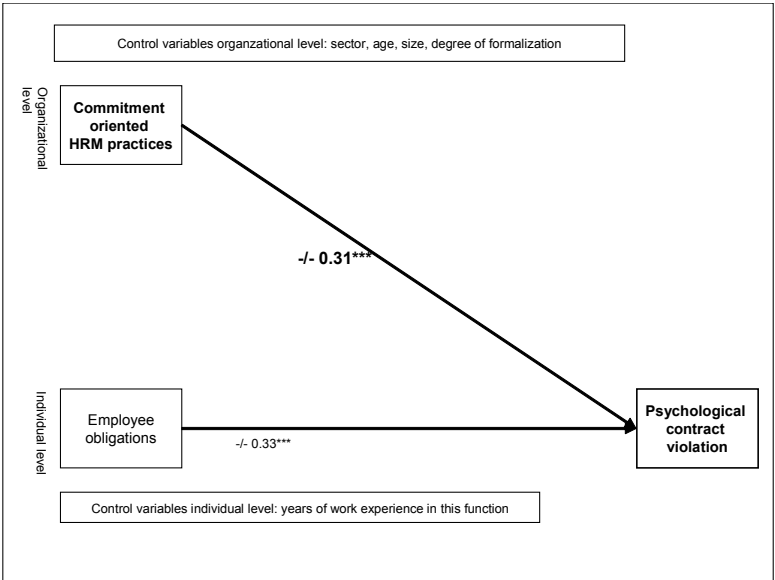
The results of our analyses provide strong support for a universalistic perspective. The parameter estimate of the organizational level explanatory variable representing the amount of HRM practices is 0.04. Stated differently: for each added HRM practice the average level of violation goes down with 0.04 (which is 1% of the possible range in fulfillment). Because the actual values of the scale of the amount of HRM practices ranged from 3-22, the predicted difference between the organization with the least HRM practices and organizations with the most HRM practices is $(19 * 0.04 =) 0.76$ point on the violation score (which is a difference of 19 % in degree of fulfillment).

When HRM managers indicated that a greater number of HRM practices were used, individual employees, regardless of individual characteristics perceived less contract violation. What these results suggest is that when the organization pays active attention to HRM by employing many HRM activities, this will lead to less psychological contract violation on the part of the employees.

The proportion of total variance explained by this model at organizational level is 0.01. In comparison with the baseline model, the HRM count variable accounts for 62% of the variance at organizational level that remains after the control variables have been added. This means that 62% in the variation of psychological contract fulfillment that is due to organizational level effects can be explained by the amount of HRM practices. We can conclude that the amount of HRM practices is of importance for explaining variation in psychological contract violation.

The second hypothesis addressed the relationship between commitment HRM and degree of perceived psychological contract violation. The results are graphically presented in figure 6-3.

Figure 6-3 Hypothesis 2: The more commitment focused HRM, the less psychological contract violation



The results of our analyses also provide support for this perspective. The parameter estimate of the organizational level explanatory variable representing the amount of HRM practices is 0.31. This tells us that a unit increase in the variable HRM commitment result in an increase of 0.31 in the dependent variable fulfillment. Stated differently: for a one-point increase in HRM commitment the average level of violation goes down with 0.31. Because the actual values of HRM commitment ranged from 1-2.28, the predicted difference between organizations which do not focus at commitment enhancing systems and organizations which do differ $1.27 * 0.31 = 0.50$ point on the violation score (which is a difference of 13% in degree of violation).

Although the parameter estimated of commitment HRM is higher then the parameter estimate of the amount of HRM practices, as a result of the range of the scale, the actual variation in violation associated with commitment HRM is much lower.

When HRM managers indicated that a greater number of commitment HRM practices were used, individual employees, regardless of individual characteristics perceived less contract violation. Our findings show thus that commitment enhancing HRM practices have an impact on the degree to which employees experience psychological contract violation. However, the focus on commitment explains only about half of the variance in psychological contract violation that is due to the total amount of HRM practices: 29% of the variation in psychological contract violation due to organizational level effects was related to commitment HRM, compared to 62% that was related with the (total) amount of HRM practices in place.

These results suggest that for a positive evaluation of employees' psychological contract it is more important to have a higher amount of HRM practices in place than to focus specifically on commitment enhancing practices.

Configurational approach

The third hypothesis focused on a configurational approach towards the influence of HRM and organizational structure on the psychological contract, taking into account the degree of coherence between organizational level factors that have a signalling function.

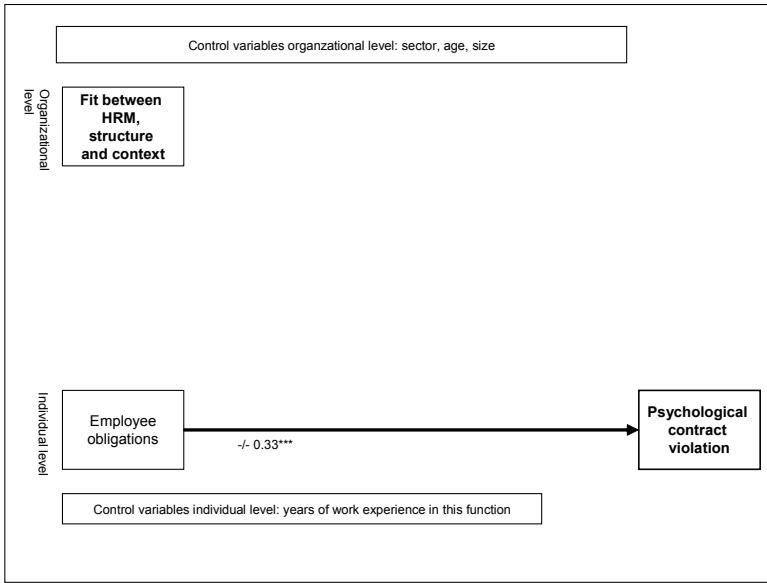
Based on theoretically based configurational ideal-types (Simple structure, Machine bureaucracy, Professional bureaucracy and Adhocracy, see table 6-3), we performed a cluster-analytical procedure and were able to identify clusters of organizations that resembled 3 of these ideal types. Due to the nature of our data, in which we did not have small organizations, we did not find the “Simple Structure” ideal type.

Table 6-3 Ideal types, measurement of four configurations (same as table 3-5, and 4-12)

	Simple Structure	Machine Bureaucracy	Professional Bureaucracy	Adhocracy
Degree of Formalization	Low	High	High	Low
Degree of Decentralization	Low	Low	High	High
Degree of Uncertainty	High	Low	Low	High
Focus on Commitment HRM	No	No	High	High

For each organization we calculated a variable measuring the distance between the closest ideal type and the actual situation of the organization. This distance variable represents the degree of fit or coherence of the organization’s HRM and internal and external context and is the variable used in our analysis. We expected that greater fit between these elements, would lead to more consistent messages sent by the organization, which, in turn, would lead to less violation of employees’ psychological contract. We did not find support for this hypothesis. The results are graphically presented in figure 6-4.

Figure 6-4 Hypothesis 3: The more an organization resembles the ideal type, the less psychological contract violation



The results of our study do not show significant relationships between consistency or fit between various aspects of HRM, organizational structure and context and psychological contract violation.

Summarizing, we can state that in line with previous research on the relationship between HRM and performance our findings support a universalistic approach. The results indicate that the more explicit attention an organization pays to HRM (i.e. the more HRM practices it has in place), the less employees feel their psychological contract is violated. In answering our main research question, HRM is significantly associated with psychological contract violation. This signalling effect stems from the amount of HRM practices in place.

We did not find clear support for the impact of fit between organizational design elements and the psychological contract violation as was expected in the line of reasoning of the configurational approach. Furthermore, our findings do not show a strong impact of commitment oriented HRM as is suggested in literature on commitment HRM. In the following two subsections we discuss the implications of these findings more in detail.

6.3 Discussion of the findings

Discussion of the findings of the universalistic hypotheses

The universalistic approach concerns the relationship between the amount of HRM practices in place and the degree of psychological contract violation and the specific focus of HRM, i.e. commitment and the degree of psychological contract violation. A key characteristic of a universalistic approach is that regardless of the (internal or external) context, elements of HRM are expected to have an influence on performance.

Although we found support for both approaches, we found that commitment enhancing HRM practices explained less than half of the variation in comparison to the model with the amount of HRM practices. In light of the degree of perceived psychological contract violation, the explanatory power of commitment HRM is less than the explaining power of the remaining HRM practices. The findings indicate that an exclusive emphasis on commitment HRM is insufficient when studying psychological contract violation, as other elements of HRM explain at least as much of the variance in violation as the commitment HRM variables.

We discuss two possible reasons for this; one has to do with our operationalization of commitment HRM, and the other with the diversity of HRM within organizations. The first explanation for this result might be found in the basis on which we integrated the practices. We calculated commitment HRM by computing the mean of in total nine HRM practices which were considered in the literature to be commitment enhancing practices (as training and development, social support, work design and consultation, organizational development and development and formulation of social policy).

As a result of this operationalization, commitment HRM is a subset of all possible HRM practices (in this study: 24 HRM practices) an organization could use. Apparently, although theoretically not all practices are considered to have such strong effects on work perceptions and behavior as commitment oriented HRM practices, other practices also enhance psychological contract fulfillment (for instance practices as staff planning, recruitment & selection, job classification). In other words, commitment HRM seems to complement rather than replace the effect of the other HRM practices.

A second explanation of the relatively weak results of the commitment HRM model is in line with suggestions made by researchers as Delery & Shaw (2001) and Lepak & Snell (1999). According to these researchers it might be disadvantageous for organizations to use commitment systems for all employees in all organization. It could be that certain combinations of practices are especially relevant for specific groups of employees (for instance core-employees versus contingent workers). Commitment HRM practices are mostly directed to core employees who are considered to be most of influence on organizations objectives. Because we did not specifically focus on core-employees and we have no additional information on this topic we cannot draw inferences on this issue. Additional analysis might shed some light on this topic.

Bringing these results together we found empirical support for the universalistic approach, with a significant larger influence of a complete additive index of HRM than for a subset commitment oriented HRM practices. Our findings indicate that HRM practices send signals that are relevant for employees' assessment of fulfillment of their psychological contracts. Thus every added HRM practice provides employees with more information, leading to less violation of psychological contracts, because employees will have more 'realistic' expectations of obligations. Thus the more HRM practices, the more signals or information sent by the organization, the less violation of psychological contracts.

Discussion of the findings of the configurational hypothesis

The general theoretical idea of the configurational approach was that when there is alignment between HRM practices, organizational structure and the context of the organization, the consistency of organizational signalling would lead to less psychological contract violation.

We investigated the configurational approach by regressing the distance between the actual situation of the organization and the theoretical optimal situation regarding organizational features on psychological contract violation. The distance represents the degree of coherence of the organizational-level dimensions HRM, organizational structure (formalization and decentralization) and degree of environmental uncertainty. Based on previous studies, we expected that the lower the distance, the more coherent the signals send by the organization, the fewer psychological contract violations employees would perceive.

We did not find any indications for the importance of such an effect. Not only didn't we find indications for the existence of a direct effect, we also did not find any indication of an indirect effect of the degree of coherence of organizational-level elements on psychological contract violation, i.e. via employee and/or employer obligations (as presented in appendix 3A and 3B). Also we found no indications for a moderating effect (based on the random slopes analysis, as presented in appendix 1).

In other words, the results of this study do not support a configurational explanation for variations in perceptions in psychological contract violation based on our operationalization of the configurational approach. Various previous empirical studies on HRM and performance arrived at the same sort of conclusions, in that they also did not find convincingly results for such a configurational effect on a variety of other performance measures (see for instance Delery & Doty, 1996).

Considering the possibility that configurational effects might be there, but are difficult to measure, we discuss two possible explanations for our findings; the first related to the content of the ideal types, the second related to our operationalizations of the fit measure.

The first explanation of the lack of empirical support could be found in the content of our ideal types. In general, there is always a trade off with the amount of variables included in classification scheme's (see for instance Meyer et al., 1993). Incorporating multiple variables or dimensions improves the value of the model. When a classification is made based upon only one or two dimensions it seems not so significant. On the other hand, when incorporating too many dimensions, the ideal types become very complex to analyze.

In general we found no clear indications in previous literature on some sort of optimum number of dimensions to include. In our study we incorporated the dimensions commitment HRM, decentralization, formalization and degree of environmental uncertainty. These were the most distinguishing variables that had been regularly used in previous literature. We thereby excluded other components of Mintzberg's classification scheme, such as the age of the organization and the degree of specialization. A more complete description could possibly lead to different outcomes.

We also could have incorporated more ideal types, such as the missionary organization. Unfortunately Mintzberg did not fully define these ideal types in a manner commensurate with the ones we used. Moreover, as results of Doty et al. (1993) suggest, fit is higher in the ideal types than in the hybrid forms. Another reason for not including for instance the missionary organization lies in the fact that in this organization HRM operates, unlike in the ideal-types of our focus, in a more implicit manner based on values that are supposed to influence employees. We could also have considered other classifications as for instance Miles & Snow (1984).

Looking more closely at the results of the variables measuring structure and context (see for instance table 5-8), we can conclude that even though including the three structural variables seems to be of theoretical importance, it is degree of formalization that has consistently shown a significant (positive) relationship with psychological contract violation. The results thus indicate that as a result of more formalization in the organization, employees experience more psychological contract violation.

We did not find any significant relationships of degree of uncertainty at all. This might be due to the specific time-period of our data collection. Although previous research found degree of perceived uncertainty a useful indicator to distinguish ideal typical conditions, at present perceived uncertainty is high in almost all sectors.

The work of Mintzberg and our measurement of degree of uncertainty stems from a relatively stable period (before 1980) compared to a later period in which in the Netherlands there was a flow towards extended market pressures as a result of an accelerating pace of developments in ICT, globalization processes and trends towards privatization in non profit organizations. Our sample consist of quite a few organizations facing these kinds of trends, like big energy companies and organizations working in health care. As result of this many organizations could have perceived their environment as highly dynamic and uncertain, that would in previous periods have not. This might have influenced the absence of a found relationship.

The second explanation for the absence of evidence is associated with our measure of fit, the distance variable. In our operationalization the underlying constructs have equal weight; this might not necessarily be the case.

Concluding, although we operationalized our ideal types in a theoretically logical manner, there is clearly a need for further investigating the practical relevance of the underlying construct of uncertainty; the dimensions to incorporate and the measure of fit.

Our results provide some indication for reasoning that although fit seems theoretically an important factor, practically it is very complex to measure and based on our results there is a question whether fit is of such importance or whether it are foremost the amount of HRM practices that is of importance, or the attention paid by the organization to employees.

6.5 Strengths, limitations and suggestions for further research

The aim of our study was to gain more insight into the relationship between HRM and performance by investigating the relationship between organizational level HRM, organizational structure variables and the individual level outcome variable perceived psychological contract violation. Our results provide clear empirical support for the existence of such a relationship. We find that especially the amount of HRM in place is clearly related to psychological contract violation. Furthermore we find that aspects of organizational structure such as the degree of formalization are also significantly related to the perceptions that employees have of their exchange relationship with the organization.

A major strength of our research is the multi-level nature of our empirical research design and the use of multi-level analysis. Over the past years, various researchers have discussed the importance for organization researchers to move from standard statistics to a multi-level approach. This is particularly of importance when the constructs of interest exist at different levels. When analyzing such data multi-level techniques are able to take into account these various levels, leading to better estimates. To investigate the importance of using multi-level analysis in our study, we compared our findings using OLS with multi-level outcomes.

When comparing our results based on multi-level analysis with OLS analysis, the latter leads (as expected) to very different results in organizational level variables (as can be seen in appendix 2). The results on basis of OLS statistics show for instance much higher estimates for the coefficients of organizational size, age of the organization and degree of formalization.

The estimates of the HRM count and HRM commitment coefficients also show a very different picture and the distance measure of the third model shows a significant estimate of the coefficient when using OLS, while this is clearly not the case using multi-level analysis. An important explanation for these results can be found in what was the main reason for using multi-level analysis in the first place, namely since OLS does not control for the multi-level nature of the underlying data, it assumes independence of the observations. As a result of this the standard errors of the estimates using are OLS much smaller (Hox, 2002:5).

Although these results were as expected, they provide us with the insight that there is clearly a need for using multi-level theory building an analysis in studies on organizational behavior, when incorporating constructs on more than one level of analysis.

Notable strengths of our research are not only the multi-level nature of our empirical research design and the use of multi-level analysis, but also the consistent (as theoretically expected) findings; the size of our sample; and the estimation of a model capturing 86% of the organizational level variance of the dependent variable (the influence of omitted variables on organizational level is not expected to be high in this study).

The results, however, should be interpreted in light of its limitations. In this subsection we discuss limitations resulting and suggestions for future research.

In this study we measured the ‘HRM practices that were employed regularly.’ As a result of this, we have no indications on the responsibility of HRM departments or the degree to which these activities were decentralized to line-managers. As Guest and Conway (2002: 35) stated it, the presence of a HRM practice does not say anything about the way is applied in the organization.

The question also rises whether each HRM practices has a similar weight. Furthermore, as Delery (1998) suggested, in combining the practices in this manner, possible substitutable and synergetic effects are thereby not captured. Although Delery (1998) proposed alternative operationalizations, these have problems of their own. For instance, when multiplying the practices in order to capture synergetic effects, in the case when one practice is not present in organizations, this would result in a zero score on commitment HRM. In general, there is no consensus on the basis on which the practices should be integrated. Future research in this direction is definitely needed. Promising is the development of alternative statistical methods for uncovering bundles of HRM practices. Guest et al (2004) for instance use sequential tree analysis for identifying bundles of HRM practices. Sequential tree analysis is based on a hierarchical way of ordering of the practices.

There is debate around the measurement of the concept of fit and dimensions to incorporate to be able to develop meaningful systems of practices and ideal-types. Considering the theoretical importance of the concept of fit seems contradicted by the empirical findings, there is clearly a need for future research on this issue.

One of the main assumptions underlying our study is that psychological contract violation has a strong relationship with individual behavior, as for instance: intention to leave the organization, loyalty, psychological withdrawal and organizational citizenship behavior. In other words, within the relationship between HRM and (individual) performance, psychological contract is seen as a mediating variable. As previous research provides indications for the existence of such a relationship, our emphasis has been on the connections between organizational level variables HRM and structure with individuals perceptions of the psychological contract. Addressing the question whether the psychological contract as an intermediate variable between HRM and organizational performance might be considered a manageable explanatory variable has not been the focus of this study.

Due to the cross-level design of our study we were not able to make statements about the causality of found relationship, or to control for specific events such as downsizing. As suggested by several researchers (e.g. Guzzo & Noonan, 1998) employees do not always actively pay attention to their psychological contract. There are indications that the psychological contract develops and is adapted mostly in special situations, such as during performance appraisal and recruitment, but also in the situation of downsizing. It might be interesting for future researchers to look specifically at these kinds of moments in time and the impact over time. Longitudinal research would shed more light on these kinds of issues.

Furthermore, as a result of our study design, we were not able to study the influence on psychological contract violation over time. As pointed out by Rousseau & Wade-Benzoni (1994) the investigated relationships might be influenced by time. There might for instance be a time lag between the promise made or the design of HRM practices at a certain moment and the promise kept. Also, when HRM practices are in place longer, the expectation is that the result is more agreement concerning the contract terms and less violation of the contract (e.g. Rousseau & Wade-Benzoni, 1994). Similarly, the study of De Vos et al. (2002) provides indications that perceptions of employees regarding contributions of both parties change during the working period of an employee within one organization.

Several researchers discussed the shortcomings of the “Rousseau operationalization” of the psychological contract. Shortcomings mentioned are for instance the amount of practices included, the way the questions are formulated and the focus on violation of employer obligations. This could have had an influence on the lack of support we found for a relationship between employer obligations and perceived psychological contract fulfillment, since the latter solely focused on the fulfillment of employer obligations. There are researchers that offer alternative operationalizations (Ten Brink et al., 1999; De Vos et al., 2003; Van de Brande et al. 2002).

A number of issues that might be of relevance to the relationship between organizational level HRM and individual level psychological contract could not be addressed in this study, for instance:

- The role of collective agreements between employer and unions. These collective agreements between trade unions and the organization are part of the institutional context, but are an important facet of employee relationships or HRM influencing psychological contract, since they define the degree of dependence between employees and organizations.
- The influence of the leader/ line-manager on the psychological contract and within the relationship between HRM and the psychological contract (Den Hartog, Boselie & Paauwe, 2004). Especially considering the tendency towards activities shifting HRM responsibility to line-manager, this might be an interesting line of future research.

The results of our study should be interpreted in terms of the previous mentioned limitations of the study. We hope that future research may replicate our findings, in different countries, various contract forms and small organizations.

6.6 Suggestions for practice

This study suggests that when an organization pays deliberate attention to HRM, employees perceive less psychological contract violation. Because previous literature confirms that perceived psychological contract violation results in undesired behavior, such as intention to quit the organization, low organizational citizenship behavior, it seems important for organizations to actively pay attention to managing the psychological contract through HRM interventions.

The psychological contract is operationalized as a measure reflecting individual employees' perceptions of employee and employer obligations, such as employee obligations to work well with others, voluntarily performing non-required tasks and working extra hours and employer obligations to provide employees with training and development possibilities and a good working climate. As a result of more HRM practices in place, employees perceive they have higher obligations towards the organization.

Furthermore, HRM practices send signals that are relevant for employees' assessment of fulfillment of their psychological contracts. Human Resource Management is, therefore, not only able to provide clarity on the amount of employee obligations, but is also able to provide clarity about those organizational design elements (as for instance recruitment, training, reward systems, task structuring), which directly affect the employment relationship. In this respect HRM is one of the crucial elements (next to for example leadership style) in managing the psychological contract.

Psychological contracts are most influential (in terms of individual behavior) when they are violated. Our research suggests that violation can be reduced by actively paying attention to the employment relationship by developing many explicit HRM activities. More explicit HRM activities seem to help individual employees to develop expectations of their employment relationship, which safeguard them against disappointments.

Thus HRM activities seem to have an important signaling function, helping employees sense what the organization expects of them and what the organization has provided the employees with in return. As employment relationships are based on reciprocity, employee behavior is dependent on the behavior of the organization. In this respect it is important to pay attention to issues of equity and fairness in shaping the employment relationship.

Although more explicit attention to HRM leads to a reduction of psychological contract violation, organizational formalization leads to more psychological contract violation. Our data point out that especially in large and/ or highly formalized organizations there is a danger of a high degree of psychological contract violation, which could result in lower performance of these employees. At first instance this finding seems to contradict our previous recommendation of making HRM practices more explicit. However, formalization here refers to rigidity in organizations due to an emphasis on coordination and control; rigidity in the application of formal written-down rules. This can easily lead to psychological contract violation as it leads to a ‘universalistic’ approach to HRM, in the sense of seeing individuals as members of categories (rather than a ‘particularistic’ approach in the sense of seeing individuals as individuals), which fails to take into account individual preferences of employees and their specific situations.

This implies a plea for making HRM practices explicit in such a way that they still allow for individual choice and leeway. Examples in this respect are the development of labour and working conditions, which allow for choice by individual employees through web-based menus. (In Dutch: arbeidsvoorwaardenkeuze model, variaties in werktijden, verlofregelingen etc). So in making as many HR practices as explicit as possible it is important not to fall into the trap of stretching rigid formalization beyond its relevance.

In contemporary literature special HRM systems as commitment or high performing work systems are being advocated as of major importance for high individual and organizational performance. However, this is not supported by our study. Although commitment HRM activities as social support, training and communication are of importance for the fulfillment of employees’ psychological contracts, the total amount of practices is a much better indicator. Advice is, therefore, not just to focus on the commitment HRM type. The focus of contemporary research on commitment HRM could well be interpreted as a denial of the relevance of other HRM practices. It is the total package that counts.

SAMENVATTING (SUMMARY IN DUTCH)

Wat bepaalt de effectiviteit van HRM? Deze vraag staat sinds jaren in de belangstelling. Onderzoek richt zich op twee aspecten hiervan: op organisatieniveau richt het onderzoek zich op de relatie tussen HRM-activiteiten en organisatieprestatie en op individueel niveau richt het zich op de relatie tussen individuele karakteristieken, werkbeleving en attitudes en gedrag van medewerkers, zoals intentie de organisatie te verlaten, tevredenheid en betrokkenheid. Hoewel de focus van HRM ligt op de werknemer-werkgevers relatie, daar waar deze twee stromen van onderzoek samenkomen, is de relatie tussen HRM en werkbeleving onderbelicht geweest.

In deze studie slaan we een brug tussen deze twee typen onderzoek door ons te richten op de relatie tussen HRM en het psychologisch contract van medewerkers. Het psychologisch contract wordt gedefinieerd als: *“de individuele perceptie van wederzijdse verplichtingen, zoals beïnvloedt door de organisatie”*.

Het psychologisch contract omvat drie aspecten:

- gepercipieerde werknemersverplichtingen, zoals de verplichting goed samen te werken, overuren te maken;
- gepercipieerde werkgeversverplichtingen, zoals medewerkers de ruimte geven voor training en ontwikkelingen en het bieden van een goed werkklimaat;
- de mate waarin de medewerker het gevoel heeft dat de werkgever tegemoet komt aan haar verplichtingen (mate van schending van het psychologisch contract).

Het psychologisch contract kan gezien worden als de lens waardoor we de invloed van HRM op de arbeidsrelatie bestuderen. Het concept psychologisch contract brengt onderzoek naar HRM op organisatieniveau en individueel niveau samen, door de focus op de uitwisselingsrelatie tussen medewerker en organisatie. Het psychologisch contract is van belang vanwege haar duidelijke relatie met attitudes en gedrag van medewerkers, zoals vertrouwen en verloop.

Samenvatting (summary in Dutch)

Deze studie biedt inzicht in de samenhang tussen HRM, organisatiestructuur, organisatiecontext en het psychologisch contract. We verkennen de relatie tussen organisatie- en individuele elementen en het proces waardoor HRM leidt tot effectiviteit. We veronderstellen interactie tussen medewerker en organisatie op basis van het aantal HRM activiteiten en de wijze waarop de organisatie HRM heeft ingericht.

Indicaties voor het bestaan van zo een relatie zijn voornamelijk te vinden in conceptuele werken. Er is weinig empirisch onderzoek dat dit bevestigt. Verschillende auteurs claimen dan ook dat er een behoefte is om deze relatie verder te onderzoeken omdat dit ons helpt het proces waardoor de relatie tussen HRM en organisatieprestatie vormgegeven wordt te begrijpen. Om te spreken met de woorden van Wright & Nishi (2004) “*er is behoefte aan het openen van de “black-box” van de relatie tussen HRM en organisatieprestatie*”.

Onze centrale onderzoeksvraag luidt:

Wat is de signaalwaarde van HRM voor de mate waarin medewerkers schending van hun psychologisch contract ervaren?

We verwachten dat HRM en elementen van organisatiestructuur communicatiewaarde hebben, in de zin dat ze signalen uitzenden die relevant zijn voor de evaluatie van medewerkers over de mate waarin de organisatie tegemoet komt aan haar verplichtingen (mate van schending van het psychologisch contract). Omdat uit eerder onderzoek blijkt dat schending van het psychologisch contract het sterkst samenhangt met individuele prestatie, richten we ons met name op dit element van het psychologisch contract.

We onderzoeken in welke mate twee benaderingen (universalistisch en configuratie) ons helpen de relatie tussen HRM-signalen en ervaren schending van het psychologisch contract, te begrijpen. Universalistische benaderingen veronderstellen een relatie ongeacht de interne en externe organisatie context.

Configuratie benaderingen incorporeren de mate van samenhang (ook wel ‘fit’ genoemd) tussen HRM en haar organisatie context, waarmee het belang van het bestuderen van de afhankelijkheid tussen verschillende elementen van de organisatie erkend wordt.

Deze benaderingen geven ons verschillende verklaringen voor een signaal effect van HRM op het psychologisch contract. Dit heeft geleid tot de ontwikkeling van drie hypothesen, waarvan de eerste twee gebaseerd zijn op de universalistische benadering en de derde op de configuratie benadering:

H1: Hoe meer HRM activiteiten, hoe minder psychologisch contract schending

H2: Hoe meer commitment-gericht HRM, hoe minder psychologisch contract schending

H3: Hoe meer de organisatie te classificeren is al een ideaaltype, hoe minder psychologisch contract schending

In de eerste benadering verwachten we (ongeacht de omgeving) dat met een toenemend aantal HRM-activiteiten, medewerkers over meer informatie beschikken die relevant is voor hun begrip van de wederzijdse verplichtingen en de tegemoetkoming van de organisatieverplichtingen. Dit leidt tot minder ervaren psychologisch contract schending.

De tweede universalistische hypothese richt zich specifiek op commitment bevorderende HRM-activiteiten. Hierbij verwachten we dat de mate van ervaren psychologisch contract schending samenhangt met de mate waarin de organisatie commitment-gerichte HRM activiteiten inzet. In de literatuur bestaan indicaties dat HRM-activiteiten de doelen van medewerkers en organisatie beter verenigen dan andere activiteiten. Van commitment HRM-activiteiten wordt verwacht dat zij een intensieve en hoge kwaliteit arbeidsrelatie opbouwen, wat zal leiden tot minder psychologische contract schending. We hebben commitment HRM geoperationaliseerd als de mate waarin de organisatie aandacht schenkt aan activiteiten als sociale ondersteuning en training and ontwikkeling.

De tweede benadering beargumenteert dat coherentie of fit tussen HRM, interne- (bijvoorbeeld formalisatie, decentralisatie) en externe organisatie-elementen (bijvoorbeeld mate van onzekerheid) van belang is voor individuele prestatie en organisatieprestatie. Om de waarde van deze benadering te bestuderen hebben we op basis van werk van Mintzberg (1979), Paauwe (1989), Verborg (1998) and Pichault & Schoenaers (2003) een model ontwikkeld dat bestaat uit vier ideaaltypen. In het licht van het psychologisch contract verwachten we dat doordat deze vier ideaaltypen duidelijke en op elkaar afgestemde signalen zenden, er minder sprake zal zijn van ervaren schending van het psychologisch contract.

Het empirisch onderzoek omvat een steekproef van 49 Nederlandse organisaties (verschillende industrieën en grootte) en 2099 medewerkers. In de periode 1999-2001 hebben we met hulp van Master studenten aan de Open Universiteit een standaard vragenlijst uitgezet. Deze Master studenten waren zelf werkzaam in deze 49 organisaties. De vragenlijst bevatte vragen over werkhoudingen en de perceptie van medewerkers van hun arbeidsrelatie. Daarnaast heeft in elke organisatie de HRM manager een standaardprotocol ingevuld waarin zijn/haar mening werd gevraagd over de inrichting van de organisatie en een aantal standaard organisatie-karakteristieken, zoals HRM-activiteiten, organisatiegrootte, leeftijd van de organisatie, mate van decentralisatie en omvang personeelsbestand.

Omdat onze constructen (HRM en psychologisch contract) verschillende niveaus beslaan (organisatie en individueel) hebben we gebruikt gemaakt van een analysetechniek die rekening houdt met de afhankelijkheid tussen verschillende niveaus: multi-level modellering en analyse. Afgelopen jaren hebben verschillende wetenschappers het belang van deze techniek voor dit type onderzoek gepropageerd. Door gebruik te maken van multi-level modellering en analyse kunnen we meer betrouwbare resultaten laten zien dan wanneer we onze analyses hadden gebaseerd op standaard statistische methoden (zoals OLS).

De uitkomsten van onze analyses geven een duidelijke indicatie voor een samenhang van het aantal HRM-activiteiten en de mate waarin medewerkers schending van hun psychologisch contract ervaren. Hoe meer HRM-activiteiten, hoe meer werknemers verplichtingen ten opzichte van de organisatie ervaren en hoe minder er sprake is van psychologisch contract schending. Dit is een indicatie dat HRM-activiteiten (zoals werving en selectie, training, beloningssystemen, taakstructurering) signalen afgeven die niet alleen relevant zijn voor perceptie van medewerkers van de mate waarin de organisatie tegemoet komt aan haar verplichtingen, maar ook voor de mate waarin de medewerker ervaart dat hij/zij verplichtingen heeft ten opzichte van de organisatie. Uit de resultaten volgt verder dat HRM één van de meest cruciale elementen is in het managen van psychologische contracten.

Hoewel we bevestiging vinden voor beide universalistische benaderingen, zien we dat vooral het aantal HRM-activiteiten en niet zozeer het specifieke commitment HRM samenhangt met de mate van ervaren psychologisch contract schending. Deze bevindingen suggereren dat een exclusieve benadrukking van commitment HRM onvoldoende is om psychologisch contract schending te verminderen. Hoewel in hedendaags onderzoek HRM systemen als ‘High Performing Work Systems’ en ‘Commitment enhancing Systems’ worden gezien als belangrijk voor het stimuleren van individuele- en organisatieprestatie, vinden wij dit dus niet terug in de resultaten van dit onderzoek. Ons advies is te richten op het totaal aantal HRM activiteiten.

We hebben in deze studie geen bevestiging gevonden voor een samenhang in de mate van ‘fit’ tussen HRM, organisatie-elementen en psychologisch contract schending. Dit kan te maken met de problematiek rondom het meten van het concept ‘fit’. Verder onderzoek is hier nodig.

In het algemeen kunnen we stellen dat meer expliciete aandacht voor HRM-activiteiten medewerkers helpt realistische verwachtingen ten aanzien van verplichtingen in hun arbeidsrelatie te ontwikkelen. Hierdoor zullen zij minder vaak teleurgesteld worden in hun werkgever (psychologisch contract schending).

Samenvatting (summary in Dutch)

Omdat eerder onderzoek bevestigt dat psychologisch contract schending zal resulteren in ongewenst gedrag zoals verloop en verminderende organisatie-identificatie, lijkt het belangrijk voor organisaties om actief aandacht te besteden aan het managen van psychologische contracten door het ontwikkelen van veel expliciete HRM-activiteiten.

Dit onderzoek geeft een duidelijke indicatie voor het bestaan van een signaal effect van HRM, waardoor medewerkers beter in staat zijn te bepalen wat er van hen verwacht wordt en wat de organisatie hen daarin tegenover stelt/ heeft gesteld. Omdat arbeidsrelaties gebaseerd zijn op wederkerigheid zal het gedrag van medewerkers afhankelijk zijn van hetgeen de organisatie biedt. Aandacht binnen organisaties voor het managen van het psychologisch contract door het inzetten van HRM-activiteiten is dus wenselijk.

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APPENDIX 1: CHECK FOR RANDOM SLOPES

Model:	M1: HRMCOUNT		M2: HRM Commitment		M3: Configurational	
Fixed part:						
Predictor	coeff.	st.error	coeff.	st.error	coeff.	st. error
Intercept	2.13 ***	0.25	2.38***	0.43	1.83***	0.47
Individual level						
Obligations employee	0.33***	0.04	0.24**	0.11	0.41***	0.13
Obligations organization	-0.05*	0.03	-0.05*	0.03	-0.05*	0.03
Years of work experience in this function	-0.08**	0.02	-0.08***	0.02	-0.08***	0.02
Organizational level						
HRM COUNT	-0.00	0.04				
HRM Commitment			-0.19	0.39		
Distance					0.09	0.13
Degree of decentralization	-0.30	0.22	-0.28	0.21		
Degree of formalization	0.03	0.09	0.03	0.09		
Degree of uncertainty	0.02	0.15	0.02	0.15		
Organizational size	0.41**	0.16	0.40**	0.15	0.41***	0.14
Organizational age	-0.08	0.11	-0.08	0.10	-0.09	0.10
Sector	0.33#		0.59#		0.59#	
Random part						
obl_work* hrmcou_m	0.01	0.01				
obl_work* hrcom			0.09	0.11		
obl_work* disl					-0.03	0.04
obl_work*logfag_m	0.05*	0.03	0.05*	0.03	0.04	0.03
obl_work*logsize_m	-0.14***	0.04	-0.13***	0.04	-0.13***	0.04
obl_work*decent_m	0.11**	0.06	0.11*	0.06		
obl_work*formal_m	-0.02	0.03	-0.02	0.02		
obl_work*uncert_m	0.01	0.04	0.01	0.04		
$\sigma^2 = \text{var}(R_{ij})$	0.23	0.01	0.23	0.01	0.23	0.01
$\tau_{00} = \text{var}(U_{0j})$	0.06	0.14	0.03	0.14	0.02	0.12
$\tau_{11} = \text{var}(U_{1j})$	-0.01	0.04	-0.01	0.04	-0.01	0.03
$\tau_{01} = \text{var}(U_{0j}, U_{1j})$	0.01	0.01	0.00	0.01	0.01	0.01
Test						
-2 restricted Log Likelihood ¹⁰	1921.466		1914.271		1894.917	
Akaike's information Criterion (AIC)	1929.466		1922.271		1902.917	

* p<0.1

** p< 0.05

*** p<0.01

significance level of F-test

¹⁰ For reasons of convergence, these estimates are based upon a restricted a maximum likelihood (REML) procedure, instead of the full maximum likelihood (ML) procedure used in estimating the empty model, the basic models and the random intercept models. As a result of this, the presented estimates of the random slope models can not be used to compare the statistical fit compared to the models estimated with ML.

APPENDIX 2: OLS REGRESSION MODELS

Model:	M1: HRMCOUNT		M2: HRM Commitment		M3: Configurational	
Predictor	coeff. ¹¹	st.error	coeff.	st.error	coeff.	st. error
Intercept	1.74***	0.28	2.28***	0.30	2.18***	0.30
Obligations employee	0.28***	0.03	0.30***	0.03	0.30***	0.03
Obligations organization	-0.05*	0.03	-0.05*	0.03	-0.06*	0.03
Years of work experience in this function	-0.10***	0.02	-0.10***	0.02	-0.11***	0.02
HRM COUNT	0.41***	0.06				
HRM Commitment			0.26***	0.08		
Distance					-0.06**	0.17
Age organization	0.36***	0.02	0.23***	0.01	0.14***	0.01
Organizational size	-0.20***	0.02	-0.10***	0.02	-0.08**	0.02
Sector :						
Manufacturing	n.s.		n.s.		n.s.	
Construction	0.13***	0.09	0.10***	0.09	0.10***	0.09
Trade and hotels	0.24***	0.09	0.15***	0.09	0.13***	0.08
Transport & Information	0.10***	0.11	0.09**	0.12	n.s.	
Professional service	0.26***	0.07	0.20***	0.07	0.12***	0.06
Health care	0.22***	0.07	0.20***	0.08	0.07**	0.07
Other	0.20***	0.05	0.20***	0.06	n.s.	
Public services	n.s.		n.s.		n.s.	
Degree of formalization	-0.24***	0.01	-0.17***	0.01		
Degree of decentralization	0.73**	0.03	0.08**	0.03		
Degree of uncertainty	0.08**	0.02	n.s.			
Adjusted R squared	0.202		0.175		0.138	

* p<0.1
 ** p< 0.05
 *** p<0.01

¹¹ Standardized coefficients

APPENDIX 3A: MODELS WITH DEPENDENT VARIABLE PERCEIVED EMPLOYEE OBLIGATIONS

Model:	Empty model		M1: HRMCOUNT		M2: HRM Commitment		M3: Configurational	
Fixed part								
Predictor	coeff.	st. error	coeff.	st. error	coeff.	st. error	Coeff.	st. error
Intercept	3.66***	0.02	3.32***	0.25	3.26***	0.26	3.26***	0.26
Individual level								
Years of work experience in this function			-0.04**	0.02	-0.04**	0.02	-0.09**	0.02
Employee age			0.13**	0.06	0.14**	0.06	0.16**	0.06
Organizational level								
HRM COUNT			0.01*	0.01				
HRM Commitment					0.06	0.08		
Distance							0.00	0.03
Age organization			-0.06	0.02	-0.02	0.03	-0.03	0.02
Organizational size			0.01	0.03	0.03	0.03	0.03	0.03
Formalization			-0.02	0.02	-0.07	0.02		
Decentralization			-0.06*	0.04	-0.06	0.04		
Uncertainty			-0.01	0.02	-0.02	0.03		
Sector			0.37#		0.43#		0.40#	
Random part								
σ^2	0.21	0.01	0.21	0.01	0.21	0.01	0.21	0.01
τ_{00}	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00
Tests								
Deviance	2300.036		1577.36		1580.479		1582.617	
Akaike's information Criterion (AIC)	2306.036		1615.36		1618.479		1614.617	

* p<0.1

** p< 0.05

*** p<0.01

significance level of F-test

APPENDIX 3B: MODELS WITH DEPENDENT VARIABLE
PERCEIVED OBLIGATIONS ORGANIZATION

Model:	Basic model		M1: HRMCOUNT		M2: HRM Commitment		M3: Configurational	
Fixed part								
Predictor	coeff.	st. error	coeff.	st.error	coeff.	st.error	coeff.	st. error
Intercept	4.03***	0.02	3.95***	0.23	4.00***	0.24	3.89***	0.23
Individual level								
Employee age			0.04	0.06	0.04	0.06	0.04	0.06
Years of work experience in this function			0.05**	0.02	0.04**	0.02	0.04**	0.02
Organizational level								
HRM COUNT			-0.00	0.00				
HRM Commitment					-0.07	0.06		
Distance							0.02	0.02
Age organization			0.04**	0.02	0.04**	0.02	0.05**	0.02
Organizational size			-0.01	0.02	-0.00	0.02	-0.01	0.02
Formalization			-0.01	0.01	-0.00	0.01		
Decentralization			-0.00	0.03	0.00	0.03		
Uncertainty			0.00	0.02	0.00	0.02		
Sector			0.08#		0.11#		0.04#	
Random part								
σ^2	0.22	0.01	0.21	0.01	0.21	0.01	0.21	0.01
τ_{00}	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test								
-2 Log Likelihood	2379.676		1579.472		1578.227		1579.891	
Akaike's information Criterion (AIC)	2385.676		1617.472		1616.227		1611.891	

* p<0.1
** p< 0.05
*** p<0.01
significance level of F-test

APPENDIX 4: DESCRIPTIVE STATISTICS AND CORRELATIONS OF THE MAIN VARIABLES OF INTEREST

	Obligations employee	Obligations employer	Psychological contract fulfillment	Decentrali- zation	Formalization	Uncertainty	HRM COUNT	HRM commitment	Distance
Range	1-5	1-5	1-5	0-5	1-16	1-5	0-24		
Mean	3.7	4.0	3.0	3.0	14.6	2.8	14.7	1.53	4.01
SD	0.48	0.48	0.55	0.56	2.0	0.96	4.22	0.32	0.67
Nr. of items	10	10	10	1.82	6	1	3	9	2.68
Minimum	1.6	1	1	4.09	16	5	22	1.0	
Maximum	5	5	5	11	11	4	24	2.28	5.36
Cronbach's alpha	0.71	0.82	0.84	0.82	0.67	0.80			
Valid Observations	2095	2096	2086	39*	46	43	43	43	36

Appendix 4

	Uncertainty	Decentralization	Formalization	HRM COUNT	HRM Commitment	Distance
Uncertainty	1	-0,028	-,351(**)	-,307(**)	-,304(**)	-,854(**)
Decentralization	-0,028	0,277	0,000	0,000	0,000	0,000
Formalization	0,277	1	-,256(**)	,066(*)	0,050	-,445(**)
HRM COUNT	-,351(**)	,256(**)	0,000	,400(**)	,230(**)	-,425(**)
HRM commitment	0,000	0,000	0,000	0,000	0,000	0,000
Distance	0,000	0,010	,400(**)	1	,776(**)	-,545(**)
	0,000	0,050	,230(**)	,776(**)	0,000	0,000
	0,000	0,057	0,000	0,000	1	-,489(**)
	-,854(**)	-,445(**)	-,425(**)	-,545(**)	-,489(**)	0,000
	0,000	0,000	0,000	0,000	0,000	1

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations			
	Obligations employee	Obligations employer	Psychological contract fulfillment
Obligations employees	1	,314(**)	,315(**)
Obligations employer	,314(**)	1	0,000
Psychological contract fulfillment	0,000	0,024	0,314
	,315(**)	0,314	1

** . Correlation is significant at the 0.01 level (2-tailed).

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The Signalling Effect of HRM on Psychological Contracts of Employees

What are the drivers of high performing organizations? During the last decade, the contribution of HRM to organizational performance has dominated HRM research and practice. Employees and their relationship with the organization take central stage in this perspective since HRM aims to contribute to organizational performance while optimizing the relationship between employees and the organization. However, HRM research has failed to empirically establish this relationship.

This study fills this important void in HRM research by empirically investigating the relevance of HRM for the employee-organization relationship. In doing so, this study 'bridges' two streams of HRM research: organizational level research on HRM and performance and individual level research on employee work perceptions and behavioral performance. We focus our attention on the concept of the psychological contract. The psychological contract is defined as: *"an individual's belief, shaped by the organization, regarding reciprocal obligations"*. The psychological contract connects organizational level and individual level perspectives because of its focus on the exchange relationship between organization and the individual.

Based on a sample of 49 organizations with 2099 individual respondents we investigated the signalling value of HRM for employees' assessment of the degree of violation of their psychological contracts, using a multi-level analytical technique. The findings indicate that there is a significant relationship between HRM, organizational design factors and the degree of perceived psychological contract violation. These findings provide us with one of the first empirical indications on how HRM leads to effectiveness.

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