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## **The relevance of size, gender and ownership for performance-related pay schemes**

A study into determinants of performance-related pay in Dutch SMEs

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## Summary

A performance-related pay scheme is a remuneration system whereby the reward for an employee is partly dependent upon its own performance and/or on the performance of the organisation. In the Netherlands, performance-related pay is being implemented in SMEs an increasing scale. Currently, about 25% of Dutch SMEs make use of some kind of performance-related pay scheme, which may include profit sharing, bonuses, gratuities and stock options.

Enterprises may use performance-related pay schemes to obtain any of the following three main goals: performance improvement, employee selection and reduction of financial risk. The aim of this study is to increase our understanding of the usage of performance-related pay schemes in Dutch small and medium-sized enterprises. In particular, we examine whether firm size, ownership structure, and gender of the entrepreneur and employees predict the presence of performance-related pay schemes.

The foundation for the theoretical framework for this study is based on agency theory. This theory elaborates on the basic principle that differences in the interests of different parties (principals and agents) can be aligned by means of formal contracts. In addition, relevant insights from the resource based view and transaction cost economics are used to examine the relevance of various specific properties of SMEs. The resulting framework is used to derive five hypotheses concerned with the relationship between firm size, ownership structure, gender of the entrepreneur and employees, and performance-related pay. These hypotheses are tested by estimating logistic regression equations, with (the usage of) performance-related pay as the dependent variable.

The results show that larger SMEs are indeed more likely to use performance-related pay than smaller SMEs. This is in line with the first hypothesis of this study.

We also find strong support for the presence of a gender effect. The results indicate that for male entrepreneurs, the use of performance-related pay is independent of the gender composition of the work force. For female entrepreneurs, we find that the usage of performance-related pay increases with the share of male employees. This relationship is such, that for firms where more than 70% of the workforce is male, female entrepreneurs are more likely to apply performance-related pay than male entrepreneurs. This gender effect was, however, not the gender effect that we expected to find. A possible explanation for the gender effect that we found is that female entrepreneurs are more inclined to take the preferences of their employees into account when they determine the compensation scheme of their enterprise.

Finally, the ownership structure also seems to matter. The results suggest that we should differentiate between (at least) three different ownership structures: single-owned and managed firms, family firms (firms with multiple owners that have family ties between them), and multiple-owned non-family firms. Once we do so, we find that single-owned and managed firms are just as likely to use performance-related pay schemes as family firms. Both types of firms use performance-related pay significantly less often than multiple-owned non-family firms.



# 1 Introduction

## *Increased attention for performance-related pay*

Man's income has been a central topic in research for many decades. Scholars ranging from philosophers to socialists, economists and lawyers have studied this field of research. Ideas and types of compensation evolve over time, as does the economy. Recently there has been a dramatic increase in the dynamics of the economy as a whole. Improved means of communications and transportation have resulted in globalization of markets. This, in turn, has led to an increased demand for flexibility of organisations. The implementation of new types of remuneration systems, namely performance-related pay schemes, is one of the instruments used by organisations to maintain their flexibility and ability to compete (Handel and Gittleman, 2004; Lawler, 2006).

The increased attention for performance-related pay schemes is illustrated by a recent study, that shows that the usage of performance-related pay increased from 25% of all Dutch enterprises (with five or more employees) in 1995 to 36% by 2001 (Gielen, Kerkhofs and Van Ours, 2006). Another indication of the increased popularity of performance-related pay schemes is the increased number of agreements in collective labour agreements. The number of collective labour agreements that include some kind of performance-related pay scheme, rose from 26% in 2001 to 37% in 2004 (SZW, 2005).

## *Objectives of performance-related pay*

Numerous studies advocate that performance-related pay improves firm performance, by aligning the financial interests of employers and employees. The literature on this issue ranges from theoretical and empirical studies about the objectives, effects and consequences of performance-related pay to guidelines for implementation and the ethics of this type of remuneration system (Banker, Lee and Potter, 1996; Beer and Cannon, 2004; Thompson, 2005). For the Netherlands, a recent study confirms that the implementation of performance-related pay in enterprises improves labour productivity (Gielen, Kerkhofs and Van Ours, 2006).

There are several objectives a firm may want to achieve by implementing a performance-related pay scheme. First of all, performance-related pay can be used to improve individual as well as overall organisational performance (Murphy, 1985; Abowd, 1990; Gerhart and Milkovich, 1992). Individual performance may increase as a result of increased effort and motivation. For example, performance-related pay involving shares or option plans can be used to create a sense of ownership for individual employees. This may in turn increase the motivation or commitment of the employees (Rynes, Gerhart and Parks, 2005; Funston, 1992; Kochan and Osterman, 1994; McCallum and Thompson, 1993). In addition, firms may use performance-related pay to communicate to current employees which aspects of the job are deemed most important. For future employees, performance-related pay may be a way for an organisation to distinguish itself from competitors (Lazear, 1986; Lazear, 2000; Trevor, Gerhart and Boudreau, 1997). When all employees put in more effort and perform better, the organisational performance increases accordingly.

It has also been argued that performance-related can be used to stimulate the acceptance of organisational changes, such as new systems or policies (Prendergast, 1999; Lazear, 2004).

Next, firms may implement performance-related pay to reduce company or entrepreneurial risk (Balkin and Gomez-Mejia, 1990; Bloom and Milkovich, 1998). By implementing performance-related pay, fixed salary-costs may be reduced and high variable labour-costs are incurred only in years of high results.

Finally, firms may hold to the principle that it is morally right to discriminate between employees that are hired for the same job but perform differently (Ballou, Podgursky, 1993; Seay, 1995; Mamman, 1997).

*So far, little attention for determinants of performance-related pay...*

All in all, organisations may decide to implement performance-related pay for a variety of objectives. The actual decision whether or not to implement performance-related pay may be determined by various characteristics of the organisation, its owners and its employees. To date, hardly any research on such determinants of pay-for-performance is available. This study aims to fulfil this knowledge-gap.

*... and for the situation amongst small and medium-sized enterprises*

In addition, studies on performance-related pay also tend to ignore small and medium-sized enterprises. A few notable exceptions are the previously mentioned study by Gielen, Kerkhofs and Van Ours (2006) and the study "Dat loont!" by De Kok, Van Praag and Van der Sluis (2007). The latter study, which focuses on Dutch enterprises with 1 to 100 employees, shows that even within this sample of SMEs the usage of performance-related pay increases with firm size. This suggests that firm size is an important determinant of performance-related pay, but this suggestion is not explored further<sup>1</sup>.

*Objective*

The objective of the current study is to gain more insight into determinants of the usage of performance-related pay schemes in Dutch SMEs. In particular, we will examine whether firm size, ownership structure, and gender of the entrepreneur and employees predict the presence of performance-related pay schemes. We will derive five specific hypotheses, which will be tested empirically using the same data that has been used previously in De Kok, Van Praag and Van der Sluis (2007).

*Structure*

In the next chapter we elaborate the subject of performance-related pay: what does it stand for, what are the possible objectives, how is it applied in general, and what are the main critiques? Chapter 3 presents the theoretical framework

<sup>1</sup> This suggestion is based on a simple correlation between firm size and performance-related pay. It does therefore not control for any other possibly relevant characteristics of the organisation, its owners and its employees.



for the current study, which is based on various insights from agency theory, the resource-based view and transaction cost economics. These insights are used to derive five hypotheses, which are presented in chapter 4. Chapter 5 discusses the sample and methodology of the research. The final two chapters present the results from the statistical analysis and the main conclusions.



## 2 Performance-related pay schemes

### 2.1 What does performance-related pay stand for?

A performance-related pay scheme is a remuneration system whereby the reward for an employee is partly dependent upon the employee's own performance and/or on the performance of the company as a whole. The underlying idea is that when two people are hired for the same task, and one person substantially outperforms the other, this superior contribution should be rewarded financially. Formulated differently, performance-related pay provides the traditional "fair day's pay for a fair day's work" (LeBlanc, 1994). Survey evidence suggests that employers as well as employees generally support this principle (Ballou and Podgursky, 1993; Seay, 1995; Mamman, 1997). Concerns exist, however, regarding the fairness of pay allocation decisions (Marsden and Richardson, 1994; Lowery, Petty and Thompson, 1996).

Performance-related pay schemes exist in a variety of types, each with their own application or emphasis. One of the oldest and most obvious forms of performance-related pay is *piece-rate compensation*. This form originated from unskilled farm labour where monitoring costs were low and wages depended on the weight or the amount of pieces harvested (Lazear, 1986). Nowadays this form of performance-related pay still exists in farming, but also e.g. in assembly line factories. A similar type of performance-related pay is *commission-on-sales*. Salesmen whose income depends on the number of goods sold or on a percentage of the value of a transaction, can be considered piece-rate workers (Lazear, 1986; Lazear 2000).

Piece-rate compensation and commission on sales are examples of outcome-based incentive compensation schemes. Outcome-based incentive compensation involves relatively little managerial supervision of employees and relies on straightforward, objective measures of performance. Such schemes are relevant when firms operate in an environment that is characterized by low task programmability<sup>1</sup> and high outcome measurability<sup>2</sup> (Banker, Lee, Potter and Srinivasan, 1996).

The *merit-pay system*, first discussed by Meyer (1975), uses the 'carrot and stick' principle. The best performing employees in any job qualification are rewarded by receiving maximum allowable increases in pay. Average performers receive average increases, and the weakest performers receive no increase at all. This approach was advocated as an effective way of controlling employee behaviour (Meyer, 1975).

<sup>1</sup> Task programmability can be defined as the ability to control output quality by specifying input tasks that are easily observed or measured. Task programmability is high if a high correlation exists between specific tasks in the production process and the resulting quality attribute of interest.

<sup>2</sup> Outcome measurability can be defined as the ease with which an outcome can be measured in a timely manner. If the outcome of a task is unobservable or unreliable to measure, the task is of low measurability.

Besides the variety of terminology and types of performance-related pay schemes, there is also variety in the rewards themselves. Generally, the employee's compensation consists of a fixed and a variable part, where the variable part depends on performance. This dependency can be operationalised by means of different types of bonuses, stock option plans, share-ownership or profit sharing. It is beyond the scope of this study to discuss the similarities and dissimilarities between these different types.

## 2.2 Objectives of performance-related pay

Due to the changing economic environment, more and more emphasis is being laid on flexibility of the organisation. Managers introduce new work practices that are supposed to increase employee performance, flexibility and involvement with organisational goals (Handel, Gittleman, 2004; Lawler, 2006). Literature on performance-related pay indicates that enterprises may use performance-related pay schemes to obtain any of the following three main goals: performance improvement, employee selection and reduction of financial risk.

### *Performance improvement*

The first and most common reason to apply performance-related pay is to motivate employees to improve their effort and to improve their personal performance, resulting in an improved overall company performance. The underlying rationale is provided by agency theory, which shows that performance-related pay can be used to align the interests of the employer (agent) and employees (principals). By making employee compensation dependent upon (determinants of) organisational performance, employees have a direct interest in improving organisation performance (Bloom and Milkovich; 1998; Prendergast, 1999; Paarsch and Shearer, 1999; Lazear, 2000; Bonner and Sprinkle, 2002; Beer and Cannon, 2004; Lazear, 2004).

Several longitudinal studies amongst individual managers confirm that a positive relationship exists between compensation, incentives and company performance. Murphy (1985) shows that the level of executive compensation (the sum of a base salary, bonus and stock options) is positively related to shareholder return and sales growth. Abowd (1990) researched data on more than 16.000 managers at 250 large corporations and found a positive relation between managerial compensation (the sum of salary and bonus) and corporate performance. Another longitudinal research amongst 14.000 top and middle managers of 200 organisations shows that variable compensation schemes are associated with organisational financial performance while fixed compensation schemes are not (Gerhart and Milkovich, 1992). Finally, a field test of 15 retail outlets over 66 months on incentive effects of a performance-related pay scheme indicated a persistent and positive effect of the implementation of the performance-related pay scheme on firm sales (Banker, Lee and Potter, 1996).

### *Employee selection*

Applicants in search of a new job may use available information on performance-related pay schemes as one of the criteria in their decision on which job offer to accept. Organisations can take this into account and use performance-related pay as a selection instrument.

From the employee perspective, differentiation in remuneration may be desired to reward differences in personal performance (Helm, Holladay and Tortorella, 2007). The idea behind this is that employees need to feel their discretionary efforts do not go unrewarded. Evidence shows that high performers are likely to seek other employment if their performance is not sufficiently recognized by means of financial rewards (Trevor, Gerhart and Boudreau, 1997). This suggests that organisations with performance-related pay schemes may attract employees that believe that they perform above average. Likewise, employees that (believe that they) perform below average may prefer organisations without performance-related pay schemes.

Thus, an organisation may use performance-related pay to select employees who consider themselves to be high performers. In addition, performance-related pay may signal a wish for employees with an entrepreneurial spirit (Lazear, 1986). Finally, firms may use performance-related pay to (signal that they) believe that a pay scheme should discriminate between employees that are hired for the same job but perform differently.

#### *Reduction of financial risk*

Organisations may also use performance-related pay as a means to reduce the financial risk of the organisation. This is possible if employee wages are made (partially) dependent of the financial performance of (parts of) the organisation. If organisational performance drops, wage costs will also decrease, so that the costs are divided between the organisation and its employees. Such a pay scheme therefore reduces organisational risk and augments the level of risk borne by the employee (Bloom, Milkovich 1998).

### 2.3 Design of performance-related pay schemes

As we mentioned earlier, a wide variety of performance-related pay schemes exists. Each of these schemes has its own specific properties, with its own specific implications for the organisation and its management and employees. Different positions may require different compensation schemes. For example, sales representatives have to perform different activities and meet different objectives than top managers. A reward system based on a sales commission makes sense to the former group, but probably not to the latter. Likewise, while the pay scheme of employees working in a production team may be based on the joint effort and / or performance of the team, the pay scheme of individually operating employees may be based on their personal achievements.

The design and operation of performance-related pay schemes is critical for their success. It is beyond the scope of this study to distinguish between types of performance-related pay schemes and their specific design. Instead, the discussion is limited to four general factors that are relevant for each performance-related pay scheme: goal setting, measurability of performance, alignment of strategy and compensation, and evaluation.

#### *Goal Setting*

Performance-related pay is tied to meeting predetermined goals. These can be financial, quality-related or productivity related. When these goals are set em-

employees should be aware of what these goals are, and they have to feel able to affect the outcomes (Kauhanen and Piekkola, 2006).

When these goals are not clear or perceived to be unattainable, the performance-related pay scheme actually exerts a negative influence on effort, motivation and performance. Another possible consequence of bad communication of goals is the perception of unfair rewards. Experience of merit pay systems is associated with doubts about the fairness of the pay allocation decisions (Marsden and Richardson, 1994; Lowery, 1996). Perceptions of pay unfairness are related to a range of negative effects for the organisation and individuals, including job dissatisfaction, reduced commitment, loss of trust in the organisation, depression and somatic complaints (Dickinson, 2006).

### *Measurability*

The ability to measure performance is crucial for the acceptance and functioning of performance-related pay schemes (Belfield and Marsden, 2003; Kauhanen and Piekkola, 2006). In addition, employees should be aware of what the performance measures are. Case evidence on this need of awareness is provided by Kessler (1994).

Especially when outcome measurability is high<sup>1</sup> and task programmability is low, outcome-based incentive compensation is likely to improve performance (Eisenhardt, 1985; Conlon and Parks, 1990; Govindarajan and Fisher, 1990; Snell, 1992). If outcome measurability is low, not all aspects of (individual or organisational) performance can be measured easily. Introducing outcome-based incentive compensation may then stimulate employees to emphasize only those aspects of performance that are measured and rewarded, ignoring those aspects of performance that are not measured. This may have a negative effect on overall performance (Prendergast, 1999).

### *Evaluation*

Once the goals have been set and the performance measures have been defined, the results must be measured and evaluated. An evaluation of the results implies that employer and employee discuss the measured results, compare them to the original goals, and discuss possible explanations for any differences.

Such an evaluation can be part of formal job evaluations. The outcomes of the job evaluation can be formally noted and recorded, enabling employer and employee to determine someone's performance over time. Formal job evaluations may help in explaining pay differentials to employees (Dickinson, 2006). In addition, regularly held job evaluations can serve as the basis for further career development such as promotions, selection or resignation. At the same time it gives the employer the possibility of coaching and (when needed) of conflict management (Klamer, 2005).

<sup>1</sup> Outcome measurability can be defined as the ease with which an outcome can be measured in a timely manner. If the outcome of a task is unobservable or unreliable to measure, the task is of low measurability.

### *Strategy and Compensation*

Finally, the association between the organisational strategy, the remuneration system, and the remuneration itself is important. The impact of a compensation system depends on the fit between the organisational context and the system chosen. It is therefore necessary to evaluate the effectiveness of performance-related pay schemes, taking into account contingency factors such as the business strategy and the existing human resource system (Gerhart, Minkhoff and Olsen, 1994; Banker, Lee and Potter, 1996).

There should be a proper alignment between the organisations business strategy and its compensation system for the firm to continue to function effectively. In a study of 280 organisations across multiple industries, the alignment between organisation's business strategy and its compensation system was associated with enhanced organisational effectiveness (Montemayor, 1996). Furthermore, empirical evidence shows that corporate strategy is a significant predictor of pay-package design, pay-level relative to the market and pay-administration policies (Balkin and Gomez-Mejia, 1990).

The reward itself also needs to be taken into account. The level of payments should be high enough and rewards frequent enough. Paying a small compensation may actually result in worse performance than not paying at all (Gneezy and Rustichini, 2000). Empirical research indeed shows that payment levels below the median do not generate positive effects (Kauhanen and Piekkola, 2006).

## 2.4 Some critical remarks on performance-related pay

Despite the positive effects that are often attributed to performance-related pay schemes, various critical remarks have been raised in the past.

First of all, the effects of a performance-related pay scheme for a specific organisation strongly depend on how it is designed and implemented. When this is not done properly, performance-related pay can have a negative effect on employees' intrinsic motivation, their self-esteem, their motivation to participate in teamwork, and their creativity (Meyer, 1975; Deci and Ryan, 1985; Amabile, 1988; Kohn, 1993; Shaw, Gupta and Delery, 2002; Beer and Katz, 2003).

Furthermore, performance-related pay may motivate employees to focus excessively on what is being measured. Particularly if outcome measurability is low, this may come at the expense of performing activities that may be just as relevant for organisational performance but are not being measured. In other words, it may lead to dysfunctional behaviour (Prendergast, 1999).

Other problems can emerge in linking performance to effort, and in linking compensation to performance. Potential barriers to linking performance to effort include:

- difficulties in measuring performance;
- performance measures being strongly influenced by factors outside the control of those that are rewarded;
- managers and peers being uncomfortable with rating employees differently.

Merit-pay systems in particular are associated with doubts about the fairness of the pay allocation decisions (Ballou and Podgursky, 1993; Marsden and Richardson, 1994; Lowery, 1996; Beer and Cannon, 2004).

Potential barriers to linking compensation to performance include:

- employees may start to rely on the additional compensation, in which case a substantial reduction in their (variable part of their) compensation is not easily accepted;
- employees tend to overestimate their own contribution to organisational performance;
- a limited corporate budget;
- managers can lose commitment to the performance-related pay scheme if total wage costs exceed what was expected due to problems in payout standards (Meyer, 1975; Beer, Cannon, 2004).

Earlier in this chapter we discussed that enterprises may use performance-related pay schemes as a means to reduce the financial risk for their organisation<sup>1</sup>. In contrast, the critical remarks and potential barriers indicate that the introduction of a performance-related pay system actually introduces a risk of its own.

<sup>1</sup> See section 2.2



## 3 Theoretical framework

This chapter presents the theoretical framework for the current study. This framework consists of relevant insights from agency theory, the resource-based view and transaction cost economics. Agency theory provides the theoretical rationale for performance-related pay schemes: formal contract can be used to align the interests of principal and agent. The resource based view and transaction cost economics can be used to gain additional insight concerning the relevance of various characteristics that are specific for SMEs.

In this chapter the relevant insights of these theories are discussed. In the next chapter several implications of these theories are used to derive the hypotheses that we will test.

### 3.1 Agency theory

Agency theory examines relationships in which one party (the principal) delegates work to another party (the agent). Agency theory attempts to describe this relationship using the metaphor of a contract (Jensen and Meckling, 1976). Agency theory is concerned with resolving two problems that can occur in agency relationships. First, the agency problem arises when desires or goals of the principal and agent conflict and when it is difficult or expensive for the principal to monitor the agent's behaviour. The second problem arises with risk sharing, that is, when the principal and the agent have different attitudes toward risk. The principal and the agent may prefer different actions while executing the work, because of their different risk preferences (Eisenhardt, 1989).

The focus of agency theory is on determining the optimal contract between the principal and the agent. Agency theory assumes the presence of a goal conflict between principal and agent (Eisenhardt, 1989). This goal conflict introduces the risk of moral hazard. Moral hazard refers to the risk that the agent may not provide the level of effort that was agreed upon, in which case the agent is shirking.

Outcome-based contracts, as a governance mechanism, may solve the agency-problem by preventing opportunistic agent behaviour. The argument is that such contracts realign the preferences of agents and principals because the rewards for both depend on the same actions and therefore the conflicts of self interest between principal and agent are reduced (Eisenhardt, 1989). The realignment of the agent's preferences with those of the principal comes at the price of transferring risk to the agent (Eisenhardt, 1989).

Finally, it is worth mentioning that the principal-agent framework can be used to examine employer-employee relationships as well as owner-manager relationship.

### 3.2 Resource based view

Formally, a firm's resources at a given time are defined as those assets, tangible and intangible, which are linked to the firm. This includes, for example, capital, machinery, trade contracts, in-house knowledge of technology, skilled personnel, and brand names. Defined like this, resources generally refer to anything that could be thought of as a strength or a weakness of a firm (Wernerfelt, 1984).

The resource based view is based on the assumption that differences in physical, organisational or human resources between firms cause a fundamental heterogeneity in their productive potential. Given this heterogeneity, the long term competitiveness of a company depends upon the resources that not only differentiate it from its competitors, but are also durable and difficult to imitate and substitute (De Kok, Uhlaner and Thurik, 2002).

For many companies human resources are the main source of sustained competitive advantage (De Kok, Uhlaner and, Thurik, 2002). Generally, human resources are much harder, or impossible, to imitate or substitute than physical resources. For most companies, maintaining a competitive advantage requires a careful management of human resources so that these resources remain difficult to imitate and substitute, and thus, competitive.

The resource based approach stresses the need for a specific HRM strategy. This strategy should strive for an internal fit of HRM practices, meaning that HRM practices should be internally consistent and reinforce each other. This strategy is generally associated with the application of formal HRM practices. Formal HRM practices are practices that are thought to stimulate employee competence and commitment. These practices include amongst others testing of applicants, incentive-pay schemes, increased emphasis on training etc (De Kok, Uhlaner and Thurik, 2002).

### 3.3 Transaction cost economics

Within transaction cost economics, the units of observation are individual transactions. Transactions can take place either within or between firms. Transactions need to be coordinated and people involved must be motivated to act. Hence, transactions are accompanied by transaction costs.

Transaction costs take the form of either coordination costs or motivation costs. Coordination costs within firms are the costs of transmitting information within the organisation. Dispersed information needs to be gathered and used to make plans, which then have to be communicated and implemented. However, communication can never be perfect. In addition, decision makers will not be able to always make the optimal decision for each problem. The resulting costs are known as coordination costs (Milgrom and Roberts, 1992).

Motivation costs are caused by informational incompleteness and asymmetries (this occurs when parties do not have all the relevant information to determine whether the terms of an agreement are mutually acceptable and whether these terms are actually being met) and by imperfect commitment (this occurs when parties are unable to bind themselves to follow through on threats and promises). (Milgrom and Roberts, 1992).

The specificity, frequency and uncertainty of transactions are important determinants of whether and how transactions will take place. Applied to the organisation of human resources, specificity refers to the required amount of firm specific human capital, and uncertainty to difficulties in the measurement of individual output. Differences in specificity and uncertainty between firms and employees require different types of labour relations (De Kok, Uhlaner, Thurik, 2002).

One of the insights that can be gained from transaction cost economics is that performance-related pay schemes can be used to reduce the motivation costs. This reduction occurs if the interests of the employer and employees are actually aligned. This reduces the risk of informational incompleteness and asymmetries and increases the commitment of employees to the firm.



## 4 Hypotheses

In this chapter we derive five hypotheses in which the presence of performance-related pay schemes is related to firm size, gender of the entrepreneur and employees, and ownership structure.

### 4.1 Firm size and performance-related pay

Larger firms have a larger demand for human resources, and therefore a larger demand for specific HRM practices. This stimulates standardization and formalization of these practices. Most formalized HRM practices require considerable development costs. This results in a cost-advantage for larger firms, which is strengthened by the limited supply of financial resources of many small firms (De Kok, Uhlaner and Thurik, 2002).

Several studies confirm the positive influence of size on the usage of formal HRM practices (Kotey and Slade, 2005; De Kok, Uhlaner and Thurik, 2006). According to Nooteboom (1993), small companies often lack more sophisticated HRM programs, not because such programs are less appropriate to them, but because small firms lack the resources to implement such programmes. This not only refers to financial resources, but also (mainly) to intangible resources such as prior experience and the capacity to acquire new knowledge.

Performance-related pay can be considered as a formal HRM practice (de Kok, Uhlaner and Thurik, 2006) or a 'high performance work practice' (Huselid, 1995). Without going into details about the exact definitions, these concepts generally refer to HRM systems that include practices such as comprehensive employee recruitment and selection procedures, incentive compensation and performance management systems, and extensive employee involvement and training (Huselid, 1995; Ramsey, Scholarios and Harley, 2000). The same properties that are contributed to performance-related pay apply to high performance work practices. These practices can improve the knowledge, skills, and abilities of a firm's current and potential employees, increase their motivation, reduce shirking, and enhance retention of quality employees while encouraging non-performers to leave the firm (Jones and Wright, 1992; U.S. Department of Labour, 1993).

Summarizing, the resource based view predicts a positive relationship between firm size and the use of formal HRM practices, including the application of performance-related pay.

Second, according to transaction cost economics, choices regarding HRM practices are made by employers (agents) whose rationality is bounded. When rationality is bounded, it becomes relevant to know where the limited attention of employers is directed at. For small firms, the perspective from which external scanning is performed is often dominated, and thereby restricted, by the personal perspective of the entrepreneur (De Kok, Uhlaner and Thurik, 2002).

The personal perspective of the entrepreneur is influenced by the size of the firm. Research shows that within small firms pay determination is often not pur-

sued in a systematic manner (Fuller-Love and Scapens, 1997) and employees often receive basic pay independent of performance (Koch and van Straten, 1997; Risseeuw, Balk and Van der Kaaden, 1999). Small business owners often consider performance-related pay as a last resort for motivating personnel (Ram, 1999). Thus, transaction cost economics also predicts a positive relationship between firm size and the use of performance-related pay.

Thirdly, according to agency theory larger firms have more need for governance mechanisms to combat moral hazard and shirking. In larger firms, shirking is less easy to detect, which increases the risk that shirking will actually occur (Chang, 2006). Outcome-based contracts may reduce the risk of shirking by removing (or reducing) the potential conflicts of self interest between employer and employees. Therefore, it is expected that larger firms will make more use of performance-related pay.

In sum, all three theories support the following hypothesis:

*H1: Firm size is positively related to the usage of performance-related pay.*

## 4.2 Gender and performance-related pay

### *4.2.1 Gender of the entrepreneur*

According to agency theory, the realignment of the agent's preferences with those of the principal comes at the price of transferring risk to the agent. In other words, outcome based contracts, like performance-related pay, can be used to transfer some of the entrepreneurial risk to the employees.

Female entrepreneurs are known to be more risk averse than men (ENSR 1996; Verheul and Thurik, 2001). This suggests that female entrepreneurs are more likely to transfer some of the company risk onto their employees, by making use of performance-related pay.

According to Verheul (2003), female entrepreneurs also differ from their male counterparts in that they are more likely to use formal HRM practices. Verheul (2003) has studied the gender effect of management styles in small firms in the Netherlands. She distinguishes between commitment and control oriented management. The higher the degree to which procedures and regulation are formalized, the higher the degree of control over employees and the production process is. She finds that female-led firms have a more control-oriented type of HRM than male-led firms. This result implies that female entrepreneurs can be associated with a higher degree of formalization, which is associated with a higher usage of performance-related pay.

In contrast, Verheul, Risseeuw and Bartelse (2002) suggest that female entrepreneurs may be more inclined to use non-pecuniary rewards, such as flexibility of working hours, childcare facilities and verbal compliments, to motivate their employees. Their relatively high attention for non-pecuniary rewards would imply that female entrepreneurs would be less likely to use performance-related pay than male entrepreneurs. However, they do not find significant support for the assumptions of less performance-related pay. Therefore the expectation remains

that female entrepreneurs are more likely to use performance-related pay schemes, and we arrive at the following hypothesis:

*H2: Firms with female entrepreneurs are more likely to use performance-related pay than firms with male entrepreneurs.*

#### *4.2.2 Gender of employees*

In chapter two we discussed that performance-related pay can stimulate both the inflow of employees that are likely to perform above average (selection at the gate), and the outflow of employees that perform below average (internal selection).

In addition, and apart from any differences in performance, the presence of performance-related pay can stimulate the inflow of male applicants. Likewise, the introduction of performance-related pay may stimulate the outflow of female employees. This would be caused by the fact that men tend to be less risk averse than women (ENSR, 1996). Performance-related pay raises the risk borne by the employee, which suggests that male employees may have a more positive attitude regarding performance-related pay. This is supported empirically by Dohmen and Falk (2001). They find that 68% of the 119 male participants prefer a variable pay compared to only 44% of the 121 women. They further show that women are more risk averse than men, and that this difference in risk preference explains their attitude towards variable pay. This implies that organisations that use performance-related pay will have a higher share of male employees. Hence, the gender of the employees can actually be used as a predictor of performance-related pay:

*H3: The percentage of male employees is positively related to the usage of performance-related pay.*

### 4.3 Ownership and performance-related pay

For this study we distinguish between two different ownership characteristics. The first characteristic is the number of owners. Based on this characteristic, we distinguish between single-owned and managed firms and multiple-owned firms. The second characteristic is only relevant for multiple-owned firms: whether the owners are related to each other or not.

#### *Single-owned firms*

Generally speaking, organisations with a single owner-manager tend to have less hierarchy, to be more flexible and to have relatively short communicational lines (Hankinson, Bartlet and Ducheneaut, 1997). Since the owner of the firm can directly control all activities, there is less need for formal control mechanisms and performance appraisal can remain informal and continuous (Mintzberg, Quinn and Voyer, 1995). In organisations where ownership and management do not coincide, the owner(s) are more likely to introduce formal control mechanisms. We therefore expect that firms where the owner and general manager are one and the same person (i.e., single owned-managed firms) will be less inclined to use formal control mechanisms than enterprises where ownership and management do not coincide.

In addition, it has been argued that owner-managers may lack the necessary resources to implement performance-related pay. If owners hire (general) managers, it is likely that the selection will be based (amongst others) on the managerial skills and experience of the candidates (including their HRM skills). This does not apply to single owned-managed firms. It can therefore be suggested that owner-managers are more likely to lack the skills necessary to carry out effective performance reviews. Instead, they are more likely to perceive formal performance appraisal systems as time consuming (MacMahon and Murphy, 1999). In addition, single owner-managers are reported to have difficulties in trusting employees and are reluctant to delegate work. This leaves single owner-managers too busy to devote time to strategic roles (Kotey and Slade, 2005).

In sum, it can be argued that single owned-managed firms may have less need for, and be less equipped for, performance-related pay schemes. This argument is formalized in the fourth hypothesis of this study:

*H4: Firms with a single owner-manager are less likely to use performance-related pay than other firms.*

#### *Family-owned firms*

In this study, we define family-owned firms as firms with multiple owners, where family ties exist between at least two of the owners. By definition, family-owned firms are multiple-owned firms.

Family-owned firms often want to remain independent, with their owners wanting to keep full control over the organisation. Employers often associate formalization of HRM practices with a loss of control. It is therefore not surprising that De Kok, Uhlaner and Thurik (2006) found that family-owned firms tend to make less use of formal HRM practices than non-family firms (controlling for differences in firm size). Since performance-related pay schemes can be considered as a formal HRM practice, we expect that family-owned firms will make less use of performance-related pay. Accordingly, the final hypothesis reads:

*H5: Family-owned firms are less likely to use of performance-related pay than other multiple-owned firms.*



## 5 Sample and methodology

For the empirical part of this study, we use the same data that has also been used in De Kok, Van Praag and Van der Sluis (2007). The first section of this chapter provides a brief discussion of this sample<sup>1</sup>. The next section discusses how we use this sample to test our hypotheses.

### 5.1 Sample

#### *Questionnaire*

De Kok, Van Praag and Van der Sluis (2007) used a questionnaire and a telephone survey to obtain the required data. The questionnaire was based on expertise of the authors as well as results of previous questionnaires. The concept questionnaire was tested through several test interviews. This resulted in a few adjustments in the formulation of the questions.

#### *Stratification and sample size*

The survey targeted Dutch private enterprises with 1 to 100 employees, from all sectors and age classes. The sample was stratified by size, sector and age. Close to 770 enterprises were contacted that fell within the stratification plan<sup>2</sup>, and almost 50% of these participated and completed the interview.

#### *Telephone survey*

The sample has been collected by means of a telephone survey which took place in June and July 2006. The questions were answered by the independent entrepreneurs (in case of a single-owned firm), the major business partner (in case of a partnership with unlimited liability<sup>3</sup>), or by the general director (in other legal structures). Unless stated differently, we use the term 'entrepreneur' to indicate the respondent of the questionnaire, irrespective of the legal form and the ownership structure.

### 5.2 Methodology

#### *5.2.1 Logistic Regression*

The five hypotheses that we want to test, relate firm size, gender characteristics and ownership structure to performance-related pay. Performance-related pay is measured as a dichotomous variable, indicating whether or not an organisation employs performance-related pay schemes for (part of) its employees. To take account of the dichotomous nature of the dependent variable, we estimate logistic regressions.

<sup>1</sup> More details can be found in De Kok, Van Praag and Van der Sluis (2007).

<sup>2</sup> In total, 2.363 enterprises were phoned. In 1.057 cases it was not possible to contact the entrepreneur, and 539 enterprises fell outside the stratification plan (e.g. having no employees or more than 100).

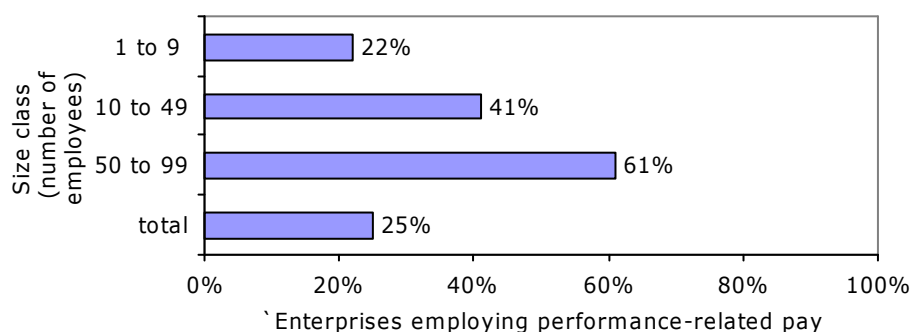
<sup>3</sup> Vennootschap onder Firma.

### 5.2.2 Dependent and independent variables

#### Dependent variable

The dependent variable in this study is the usage of performance-related pay. Performance-related pay is defined as a compensation scheme where at least part of the remuneration of employees depends upon individual and/or organisational performance. Performance-related pay can include various instruments or components, such as bonuses, gratuities, or profit sharing schemes. In 2005, approximately 25% of all Dutch SMEs employed some kind of performance-related pay for at least some of their employees (Figure 1).

Figure 1 The use of performance-related pay by Dutch enterprises, by size class (2005)



Source: ACE and EIM, *beloningsonderzoek 2006*; weighted results

#### Independent variables

Firm size is measured as the number of employees. Often, relative differences in firm size are more important than absolute differences. For example, firms with 20 employees are likely to differ in many respects from firms with 5 employees, but this does not hold for firms with 1.020 or 1.005 employees (even though in both cases the difference is 15 employees). We take account of this effect by including the logarithm of firm size as an independent variable in the regression.

The gender of the entrepreneur is represented by a dummy variable 'female entrepreneur', which indicates whether or not the entrepreneur is female. The sample includes 51 female entrepreneurs, which accounts for 14% of the sample. This share is considerably lower than the reported 30% of female entrepreneurs in the western world (OECD, 1998). Assuming that female entrepreneurs are less likely to have employees than males, the difference may be explained by the fact that our sample excludes firms without employees.

The sample contains information about the total number of employees, and about the number of male employees. By combining these two variables the share of male employees can be calculated. This variable is used to represent the gender composition of the workforce. It is not unconceivable that the strength of the relationship between the share of male employees and performance-related pay will differ between firms with male and female entrepreneurs. We may control for this possibility by adding a gender crossterm to the model. This gender

crossterm is calculated as the product of the variables 'female entrepreneur' and the share of male employees.

In this study we distinguish between two different ownership characteristics: the number of owners and the presence of family ties between owners. Consequently, we want to be able to differentiate between three different ownership structures: firms with a single owner-manager, firms with multiple owners with family ties between them, and firms with multiple owners without family ties between them<sup>1</sup>. In order to identify these three groups and test the associated hypotheses, we use three different dummy variables.

The first variable is 'single-owned', which indicates whether or not the firm has a single owner-manager. The second variable is 'family-owned' which indicates whether or not at least two of the owners (of a firm with multiple owners) are connected by family ties. In order to test the fifth hypothesis, this variable is only defined for multiple-owned firms<sup>2</sup>. The third variable is 'multiple owned', which indicates whether or not a firm has multiple owners that are not connected by family ties. This variable is defined for all firms, which means that it can be used to compare multiple owned non-family firms with the other two ownership structures.

If both hypotheses regarding the ownership structures (H4 and H5) would be true, then the variable 'multiple-owned' should have a significant relationship with the usage of performance-related pay: hypothesis H4 indicates that single-owned and managed firms are less likely to use performance-related pay than multiple-owned firms, while hypothesis H5 indicates that within the group of multiple-owned firms, family firms are less likely to use performance-related pay than non-family firms.

If ownership structure would be closely related with firm size, it would be very difficult to differentiate empirically between the effects of firm size and ownership structure. As it turns out, the average firm size in our sample is independent of the ownership structure (Table 1), so the data allows us to differentiate between these different hypotheses.

<sup>1</sup> The sample contains three firms that represent a fourth ownership structure: firms with a single owner where the owner is not the manager. These firms are excluded from further analyses.

<sup>2</sup> The fifth hypothesis is about the relevance of family ties for multiple-owned firms. If this hypothesis would be tested using a sample that includes single-owned firms, it would be difficult to differentiate it from the fourth hypothesis (which compares single-owned and managed firms with multiple-owned firms).

Table 1 Average firm size by ownership structure

<i>Ownership structure</i>	<i>Average firm size</i>	<i>Number of observations</i>
Single-owned and managed firms	22	168
Multiple-owned family firms	24	76
Multiple-owned non-family firms	25	95
Total	24	339

Source: ACE and EIM, *beloningsonderzoek 2006*

### 5.2.3 Control variables

#### *Firm age*

Organisations have both a legal age and an economic age. The legal age is the age of the current legal form of the organisation. This is the age that is registered at the Chamber of Commerce. An organisation's economic age indicates how long the firm has been economically active. De Kok, Van Praag and Van der Sluis (2007) show that the legal and economic age of firms will often differ. Using only three age categories<sup>1</sup> they find that for about half of the population of Dutch SMEs, the legal age falls in a different age category than the economic age. If the age categories differ, it is mostly the case that the economic age exceeds the legal age. A possible explanation for this might be that the legal structure of the organisation has changed over time.

In this study we control for possible age effects by including the logarithm of the economic age.

#### *Sector*

Sector is often used as a control variable in economic studies. In the case of our sample, information about the sector is missing for about one third of the observations. Including sector dummies as control variables will therefore result in a substantial reduction of the number of valid observations. Our main analyses are therefore conducted without sector dummies; regression results including sector dummies are included in the annex.

#### *Function suitability and management capability*

Function suitability indicates to which extent the respondent believes that most of the positions within their organisation are suitable for performance-related pay. Management capability indicates to which extent the respondent believes that the management of the organisation is capable of measuring individual employee performance. Both variables are measured on a five-point scale. We expect that both variables will be positively related with the presence of performance-related pay. Since the causality between these variables is not clear<sup>2</sup>, we only include them as control variables.

<sup>1</sup> 0 to 3 years, 4 to 7 years and 8 years or more.

<sup>2</sup> Firms that use performance-related pay are more likely to score high on function suitability and management capability, if only to justify the introduction of performance-related pay.

## 6 Results

Two models have been estimated to test our hypotheses. The first model is estimated for the whole sample, which includes single-owned as well as multiple-owned firms. This model can be used to test hypotheses H1, H2, H3 and H4. The fifth hypothesis compares two different groups of multiple-owned firms (family-firms versus multiple-firms). This hypothesis cannot be tested in a model that also includes single-owned firms, because this would make it very difficult to differentiate it from the fourth hypothesis. We have therefore estimated a second model, using only observations from multiple-owned firms. The results of both models can be found in Table 2 .

Table 2 Results of Logistic Regression on the presence of performance-related pay, for different populations

<i>Independent variables</i>	<i>Population examined</i>	
	<i>Single-owned and multiple-owned firms</i>	<i>Multiple-owned firms only</i>
Ln (size)	.49 (.00)*	.43 (.01)**
Female entrepreneur	-.91 (.08)	-.78 (.22)
Share of male employees	.01 (.32)	.01 (.17)
Single-owned	-.39 (.18)	
Family-owned		-.63 (.17)
Log age	.00 (.99)	.07 (.69)
Management capability	.25 (.21)	.02 (.93)
Function suitability	.54 (.00)*	.46 (.01)*
Constant	-4.57 (.00)*	-3.50 (.02)**
<i>Goodness of Fit Measures</i>		
Cox & Snell R <sup>2</sup>	.17	.18
Nagelkerke R <sup>2</sup>	.24	.24
-2 Log likelihood	297	158
% Predicted Correctly	71.4 <sup>A</sup>	67.1 <sup>B</sup>
Chi <sup>2</sup> test statistic	52.3 (.00)*	27.4 (.00)*
Valid Observations	273	140

\* *significant at 99% confidence level*

\*\* *significant at 95% confidence level*

<sup>A</sup> *Value for the empty model = 66.3%*

<sup>B</sup> *Value for the empty model = 62.1%*

The presented goodness-of-fit statistics indicate that both models increase our understanding of performance-related pay. The highly significant values of the Chi<sup>2</sup> test show that both models performs better than the empty model (which

includes no independent variables). The models also provide a better prediction of which firms use performance-related pay than the empty model.

Despite these overall statistics, only one of the relevant independent variables differs significantly from zero: firm size. In both models, firm size has a significantly positive relation with the usage of performance-related pay. Larger firms are indeed more likely to use performance-related pay than smaller firms. The other hypotheses are rejected: if we correct for firm size, none of the variables related to gender and ownership structure have a significant relationship with performance-related pay.

A possible explanation for this lack of significant results is that the underlying relationships are more complex than we originally assumed. To examine if this is the case, we included the gender crossterm and the variable 'family owned' in the models and re-estimated them. The results of this analysis can be found in Table 3.

Again, the presented goodness-of-fit statistics indicate that both models are significant. More importantly, the  $R^2$ -statistics and the % predicted correctly all indicate that they perform better than the models presented in Table 2.

#### *Firm size positively related with performance-related pay*

Just as in the previous models, we find a significant positive effect of firm size. Moreover, the estimated parameters are very similar across the five estimated models (ranging between 0.43 and 0.50), which suggests that these results are fairly robust. Larger firms are more likely to use performance-related pay, even if we control for differences in gender, ownership structure and economic age of the organisation.

#### *The gender composition of the workforce does not matter for male entrepreneurs...*

Once we introduce the gender crossterm in the model, we find support for the presence of a gender effect. The results indicate that for male entrepreneurs, the use of performance-related pay is independent of the gender composition of the workforce. This follows from the observations that for male entrepreneurs the gender crossterm is zero<sup>1</sup>, as is the parameter for 'share of male employees'.

#### *... but it does for female entrepreneurs*

For female entrepreneurs, the picture is different. We find a highly negative parameter for the variable 'female entrepreneur' and at the same time a positive parameter for the gender crossterm. The first parameter indicates that, in firms with a low share of male employees (so that the gender crossterm is close to zero), female entrepreneurs are very unlikely to use performance-related pay. The second parameter indicates that for female entrepreneurs, the use of performance-related pay is related to the gender composition of the workforce: an increasing share of male employees is associated with an increased usage of performance-related pay.

<sup>1</sup> This crossterm is defined as the product of the variables 'female entrepreneur' and 'share of male employees'; for male entrepreneurs, the first variable is zero.

Table 3 Results of Logistic Regression on the presence of performance-related pay, for different populations

<i>Independent variables</i>	<i>Population examined</i>		
	<i>Single-owned and multiple-owned firms</i>	<i>Multiple-owned firms only</i>	
Ln (size)	.50 (.00)*	.48 (.00)*	.46 (.01)**
Female entrepreneur	-4.97 (.01)**	-4.92 (.01)**	-6.79 (.05)***
Share of male employees	.00 (.98)	-.00 (.87)	.00 (.78)
Gender crossterm	.07 (.01)**	.07 (0.01)**	.09 (.03)**
Single-owned	-.39 (.12)		
Multiple-owned		.67 (.04)***	
Family-owned			-.64 (.16)
Log age	-.03 (.83)	.05 (.72)	.04 (.85)
Management capability	.22 (.26)	.26 (.20)	-.02 (.95)
Function suitability	.55 (.00)*	.54 (.00)*	.47 (.01)*
Constant	-4.17 (.00)*	-4.79 (.00)*	-2.86 (.01)*
<i>Goodness of Fit Measures</i>			
Cox & Snell R <sup>2</sup>	0.21	.21	.23
Nagelkerke R <sup>2</sup>	0.29	.30	.32
-2 Log likelihood	286	283	148
% Predicted Correctly	71.8 <sup>A</sup>	72.2 <sup>A</sup>	68.6 <sup>B</sup>
Chi <sup>2</sup> test statistic	36.2 (.00)*	65.7 (.00)*	37.3 (.00)*
Valid Observations	273	273	140

\* *significant at 99% confidence level*

\*\* *significant at 95% confidence level*

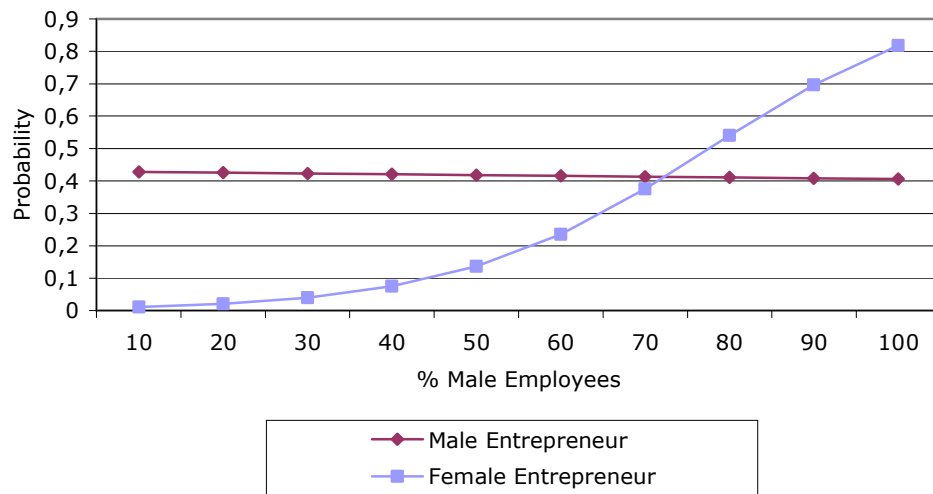
<sup>A</sup> *Value for the empty model = 66.3%*

<sup>B</sup> *Value for the empty model = 62.1%*

These gender effects are illustrated in Figure 2, for the case of multiple-owned, non-family firms. It shows that in companies with a high share of male employees, female entrepreneurs are more likely to apply performance-related pay than male entrepreneurs. In companies with a moderate-to-high share of female employees, female entrepreneurs are less likely to apply performance-related pay than their male counterparts.

A possible explanation for this phenomenon is that female entrepreneurs are more willing to take the preferences of their employees into account. Male employees tend to be less risk-averse than female employees, and therefore more often prefer performance-related pay. If entrepreneurs were to take account of these preferences, we would expect to find a positive relationship between the share of male employees and the use of performance-related pay, which is exactly what we found for female entrepreneurs.

Figure 2 Relationship between probability of using performance-related pay and share of male employees in multiple-owned non-family firms, for male and female entrepreneurs



However, it should be noted that the subsample on which this analysis is based, includes only 36 female entrepreneurs, of which only eight are managing a workforce with more than 70% males.

*Single-owned and managed firms comparable to family firms*

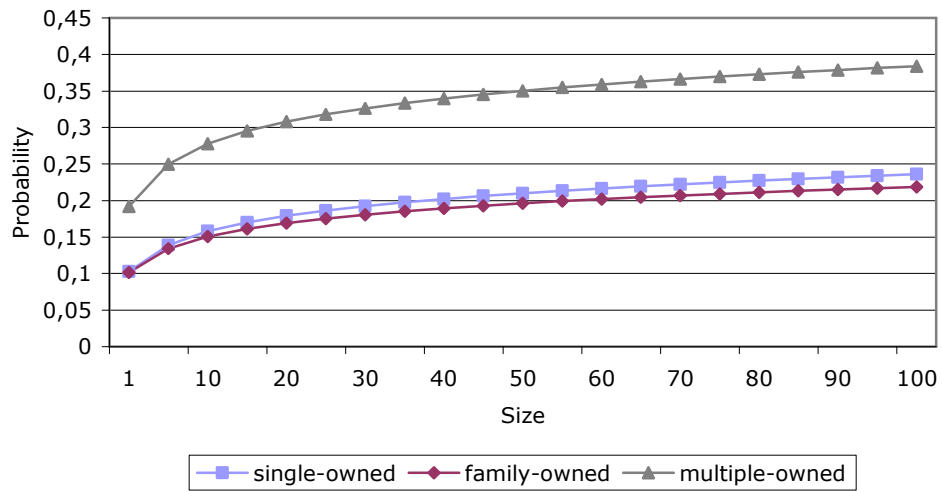
Each of the three models in Table 3 includes a different indicator of ownership structure. Neither the variable 'single-owned' nor the variable 'family-owned' has a significant effect, which means that we still cannot accept hypotheses H4 and H5. However, the variable 'multiple-owned', which indicates multiple-owned non-family firms, does have a significant and positive relationship with the usage of performance-related pay. This indicates that ownership structure is indeed related to the usage of performance-related pay, although in a different way than we expected.

Figure 3 illustrates for each of the three ownership structures how the probability of using performance-related pay increases with firm size. This figure clearly illustrates that multiple-owned non-family firms are more likely to use performance-related pay than any of the other firms that we considered. It also shows that single-owned and family-owned firms behave very similar in this respect. This could explain why we found no support for hypothesis H4. This hypothesis compares single-owned firms to all multiple-owned firms, which includes family-owned firms.

The fact that we find no support for hypothesis H5 may be due to the relatively small sample that is available to test this hypothesis (only 140 firms, which is about half of the sample of all firms).



Figure 3 Relationship between probability of using performance-related pay and firm size, for different ownership structures



Firm age and management capability do not seem to be useful predictors of performance-related pay. Function suitability is highly significant. This might illustrate the intuitive expectation that firms who regard their functions to be suitable for performance-related pay, are more likely to actually use performance-related pay. This finding would, however, also result if firms that have performance-related pay are biased toward answering that their functions are indeed suitable for performance-related pay. One could therefore argue that this variable (just as management capability) should be excluded from the model. If we do so, we find that the values, signs, and significance levels of the other variables do not change much. The explanatory power of the model, however, diminishes.



## 7 Conclusion

Organisations may use performance-related pay schemes in order to improve individual and organisational performance, to improve the recruitment, selection and retention policy, and to reduce the financial risk of the organisation. The actual decision to use performance-related pay may be determined by various characteristics of the organisation, its owners and its employees. Little is known, however, about the relevance of these determinants. This holds a fortiori for small and medium-sized enterprises. With this study we aim to increase our understanding of such determinants amongst SMEs. We do so by examining whether firm size, ownership structure, and gender of the entrepreneur and employees predict the presence of performance-related pay schemes.

As the results show, larger SMEs are more likely to use performance-related pay than smaller SMEs. This is in line with the first hypothesis of this study.

We also found a gender effect. This effect differs, however, from what we expected based on our theoretical framework. The results indicate that for male entrepreneurs, the use of performance-related pay is independent of the gender composition of the work force. This indicates that the rationale underlying hypothesis H3 is not correct. This rationale assumed that the presence of performance-related pay schemes would stimulate the inflow of male applicants. This argument is independent of the gender of the entrepreneur, which is not supported by the results of our study.

For female entrepreneurs, we find that the usage of performance-related pay increases with the share of male employees. This relationship is such, that female entrepreneurs are more likely to apply performance-related pay, only if more than 70% of their workforce is male. This rejects hypothesis H2, which states that female entrepreneurs are always more likely to apply performance-related pay. Again, this suggests that the underlying rationale is not correct: there is no indication that female entrepreneurs are more likely to use performance-related pay in order to relocate part of the financial risk of the organisation towards the employees.

How should we then explain the gender effect that we found? A possible explanation is that female entrepreneurs are more inclined to take the preferences of their employees into account when they determine the compensation scheme of their enterprise.

The ownership structure is the final predictor of performance-related pay that we examined. The two hypotheses that we formulated were both rejected, but the results suggest that this is because we did not distinguish properly between the three relevant ownership structures. Once we do so, by differentiating between multiple-owned non-family firms on the one hand, and family firms and single-owned and managed firms on the other hand, we find that both single-owned and managed firms and family firms are less likely to use performance-related pay than multiple-owned non-family firms. The results also show that single-owned and managed firms resemble family firms in this respect.



## ANNEX I    Logistic regressions including sector information

Table 4 presents the results of logistic regressions of two models, with and without the available sector information. The  $\text{Chi}^2$  test statistics indicates that the inclusion of the sector dummies does not significantly improve the models. This is in line with the finding that none of the included sector dummies differ significantly from zero. At the same time, including sector information substantially diminished the number of valid observations.

Table 4 Results of Logistic Regression on the presence of performance-related pay, for different populations, with and without sector dummies

<i>Independent variables</i>	<i>Population examined</i>			
	<i>Single-owned and multiple-owned firms</i>		<i>Multiple-owned firms only</i>	
Ln (size)	.49 (.00)*	.54 (.00)*	.43 (.01)**	.465 (.03)**
Female entrepreneur	-.91 (.08)	-1.20 (.06)	-.78 (.22)	-1.44 (.10)
Share of male employees	.01 (.32)	.00 (.74)	.01 (.17)	.01 (.24)
Single-owned	-.39 (.18)	-.26 (.45)		
Family-owned			-.63 (.17)	-.46 (.45)
Log age	.00 (.99)	.10 (.48)	.07 (.69)	.16 (.45)
Management capability	.25 (.21)	.10 (.68)	.02 (.93)	-.24 (.43)
Function suitability	.54 (.00)*	.56 (.00)*	.46 (.01)*	.48 (.03)
<i>Sector dummies</i>				
Construction		-.65 (.33)		-.97 (.29)
Automotive		-.03 (.98)		20.34 (.99)
Wholesale		.74 (.25)		-.70 (.59)
Retail		-.65 (.29)		.44 (.61)
Transport and communication		-.94 (.38)		-20.8 (.99)
Service		.59 (.25)		.69 (.32)
Catering		.14 (.82)		.43 (.65)
Constant	-4.57 (.00)*	-4.46 (.00)*	-3.50 (.02)**	-3.31 (.10)
<i>Goodness of Fit Measures</i>				
Cox & Snell R <sup>2</sup>	.17	.22	.18	.25
Nagelkerke R <sup>2</sup>	.24	.30	.24	.38
-2 Log likelihood	297	235	158	118
% Predicted Correctly	71.4 <sup>B</sup>	71.2 <sup>A</sup>	67.1 <sup>D</sup>	71.6 <sup>C</sup>
Chi <sup>2</sup> test statistic	52.3 (.00)*	10.1 (.18)	27.4 (.00)*	8.6 (.28)
Valid Observations	273	229	140	116

\* significant at 99% confidence level

\*\* significant at 95% confidence level

<sup>A</sup> Value for the empty model = 66.8%

<sup>B</sup> Value for the empty model = 66.3%

<sup>C</sup> Value for the empty model = 63.8%

<sup>D</sup> Value for the empty model = 62.1%

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