Ownership structure and Human Resources Strategy: The case of Spanish manufacturing firms[1]

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ABSTRACT

Using panel data from the Spanish Ministry of Science and Technology from 1999 to 2007, this paper is the first to analyze the relationship between ownership structure and the Human Resources strategy in Spain. One of our key findings is that two stable HR strategy equilibria exist: a high commitment strategy, with firms, paying higher wages and spending more on training than their competitors, and a low commitment strategy. We find that corporate and foreign blockholders increase the probability that firms follow a high commitment HR strategy, while family ownership, if combined with family management is negatively related to the choice of a high commitment strategy. However, we find that blockholders may mitigate this negative effect by giving family firms access to new technologies and strategies. Our results show that a high commitment HR strategy is desirable for most firms, since it leads to higher productivity and profitability in the long run. However, some firms may prefer a low commitment strategy, if it is more consistent with the firm's overall strategy.

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1. Introduction

As long as firms are studied scientifically, scholars are searching for the underlying causes of firm's performance and success. Those studies that want to explain the firms' performance usually include factors like capital structure, competition, export orientation, R&D and ownership structure as independent variables. However, even after controlling for all these variables, significant differences in firms' performance may remain. This may be due to the impact of Human Resources Management, which have recently received more attention. It could be an important element to explain part of this difference in the firms' performance in the long run. The motivation of this paper is to bring further insights into the choice of the Human Resources Management strategy and its impact on the firm's performance.

A better knowledge of the performance-influencing elements, in our case the Human Resources Management (HRM) strategy, is of great interest for various groups of decision makers. Managers are interested to increase the productivity and performance of their managed companies and can directly implement favorable HRM structures. Policy makers can design constraints and laws that favor HRM strategies aiming at stable long term results and employment. Investors want to invest in firms, in which the HRM strategy leads to the most promising long-term rate of return. Finally, researchers are interested to understand better the functionality of a firm, including the interdependency of the HRM strategy.

In this paper, we focus particularly on high-commitment Human Resources Management, which has become an important topic in both theory and practice. Basically, the idea of high-commitment HRM is that a particular bundle of Human Resources (HR) practices has the potential to improve employee attitude and behavior, to lower the levels of absenteeism and labor turnover, and to increase the levels of productivity, quality and customer service, which might have the ultimate effect of generating higher levels of profitability. Furthermore, the widely used phrase of high-commitment HRM stands for various objectives in the area of Human Resources. First, employees should work in the best interest of the organization with a deep understanding of the firm's interests. Second, employees should be flexible and be willing to take assignments different from their usual work. Finally, employees should anticipate and decide on their own what needs to be done. Various HR practices, like employment guarantees, job enlargement, premium wages, extensive training and job rotation, have been developed to reach these goals (Baron & Kreps (1999)). During the last years, its popularity has risen steadily and there exist many studies of successful examples implementing high-commitment HRM (e.g. Appelbaum et al. (2000),Astrachan & Kolenko (1994) and Guest et al. (2000)).

In our analysis, we will assess the HR practices each firm uses and deduce the applied HR strategy. In particular, we will distinguish between high commitment HRM firms, low commitment HRM ones and firms in a transition state that use some, but not all practices of high commitment HRM.

The second focus of the paper is the role of ownership structure. Most studies analyze the direct link between the ownership structure and the company's performance (e.g. Demsetz & Lehn (1985); Demsetz & Villalonga (2001)) while others concentrate more on the relationship between ownership structure and corporate strategy, like diversification, R&D or growth (e.g. Baysinger, Kosnik & Turk (1991)). Very little research has been conducted on the link between ownership structure and the Human Resources strategy.

One of the few studies is Deakin & Rebérioux (2007), who compared the ownership and HRM situation in France and Britain. In particular, they distinguished between listed and non-listed companies and the presence of institutional investors. They found that listed companies in France follow a "high-road"-HRM approach. That is, French companies pay above-industry wages and invest heavily in training. On the other hand, they limit the number of "core" employees and outsource remaining work to subcontractors. British companies, on the other hand, due to weak labour laws and intense financial pressures, are unwilling to enter into long-term commitments with employees, and favor a strategy of cost-cutting and labor intensification, or "low-road" approach.

The absence of more studies is quite surprising, since the HR strategy can be considered as an elementary part of the firm's strategy. We want to close this gap in the literature by conducting a detailed analysis of the relationship between different types of ownership and the chosen HR strategy. While Deakin & Rebérioux (2007) did a comparison on the macro level, we want to analyze at the micro level the causes behind the choice of a specific HR strategy.

Our analysis consists of three steps: First, the HR strategy is analyzed and the stability of a chosen strategy is evaluated. Second, we investigate the long-term effects of a chosen HR strategy, in particular the company's performance, the growth rates and the productivity. Finally, we analyze if the decision about the HRM strategy is related with the ownership structure, in particular with the presence of family control and corporate blockholders. By definition, family firms are controlled actively by a family group, while a corporate blockholder is a company or investor that holds at least 25% of the target firm.

Regarding family firms, they differ from non-family firms in terms of values, objectives and strategic behavior (Donckels & Frohlich (1991), Singer & Donoho (1992)). While family firms exhibit some specific competitive advantages like long-term orientation, flexibility and family culture as a source of commitment, they also have some crucial disadvantages, like conflicts of interests because of personal objectives of the family members, and risk-averse behavior due to a lack of diversification of the family's investments. Some family firms may also be engaged in nepotism and primogeniture, where the eldest son succeeds his father in managing the firm. All these characteristics limit the opportunities for family firms to acquire resources, especially intangible knowledge-based assets such as technologies, well-known brands or qualified

personnel (Fernández & Nieto (2006), Dierickx & Cool (1989)), including the introduction of new HRM practices.

However, the presence of corporate blockholders could mitigate the negative aspects of family ownership. Besides financial advantages, a corporate blockholder can provide technological, commercial and organizational knowledge(Allen & Phillips (2000)). Furthermore, management quality may improve, because the selection criteria for managers will be based more on qualifications (Bijmolt & Zwart (1994)). Not surprisingly, it is becoming more common for family firms to have corporate blockholders because they have sold part of their equity to another company (Fernández & Nieto (2006)).

We use data of Spanish small and medium firms. Spain is a suitable country for our investigation because the analysis of the relationship between ownership type and strategic behaviour is especially important in Europe, where ownership is concentrated and the most frequent blockholders are families and non-financial corporations. In fact, outside the Anglo-Saxon world, most firms are family owned and non-listed. Furthermore, small and medium companies are responsible for the majority of businesses.

The remainder of the paper is structured as follows: In the second section, we will explain the theoretical background and previous findings in detail, in particular those related to Human Resource Management and ownership structure, from which we derive our research hypotheses. The third section describes the sample, the variables and the research technique. In the fourth section, we analyze the results and explain the findings. Finally, we conclude in the fifth section.

2. Theoretical background and previous findings

2.1 Human Resources Management

2.1.1 High commitment HRM

In recent years, the importance of Human Resources Management has increased and there has been much interest in the notion of high commitment HRM, also referred as “best practice HRM” or “high performance work systems”. High commitment HRM is a fashionable term for HR practices that aim at getting more from workers by giving more to them (Baron & Kreps (1999)). It can be part of Total Quality Management and is related to the management style of traditional large Japanese firms. Baron & Kreps (1999) define three goals that are pursued in high commitment HRM: First, employees should work in the best interest of the organization with a deep understanding of the firm’s interests. Second, employees should be flexible and be willing to take assignments different from their usual work. Finally, employees should anticipate and decide on their own what needs to be done.

To accomplish these goals, Baron & Kreps (1999) and Pfeffer (1998) state various HR practices from which organizations pick and choose:

- Employment guarantees: with the exception of massive errors and misbehaviour, workers will not be laid off.
- Selective hiring and sophisticated selection
- Egalitarianism in word and deed: de-emphasis of distinctions among workers at different levels of hierarchy. Creation of teams. Abolishment of symbolic distinctions like separate dining facilities or reserved parking spots.
- Self-managing teams and team production
- Job enlargement and enrichment
- Premium wages: wages above the industry average for a given qualification
- Incentive compensation based on team, unit, or firmwide performance
- Extensive training of employees
- Job rotations
- Open information about all aspects of the company
- Open channels of communication: everybody is allowed and expected to contribute ideas.
- Strong culture of egalitarian teamwork
- Focus on superordinate goal, like zero defects
- Strong emphasis on ownership, both symbolic and financial (through stocks)

A problem with the various "best practices" lists (e.g. J. Delery & Huselid (1996), Wood & de Menezes (1998)) is that there are inconsistencies between studies, with some study ignoring one factor but including another. Although high complementarities between the practices exist, companies seldom implement all of them, but only a few. In the following we will focus especially on two practices, training and premium wages, which play a central role in the high commitment HR strategy, since both have a direct connection to the total personnel expenses (Perraudin, Petit & Reberioux (2008)) and are, therefore, in the focus of HR managers.

2.1.2 Elements of high-commitment HRM: Training and efficiency wages

Training

The first element of high commitment HRM we focus on is training. Why should firms train their workers? Following Human Capital Theory, firms train workers to increase the firm's profits (Baron & Kreps (1999)). When deciding whether or not to invest in human capital, the firm calculates three expected net present values: the cost of training, the benefits of training

and the increase of the salary that must be paid to the employee because of the training. To be worthwhile, the benefits of the training must exceed the costs and the increase of the salary.

Various benefits from training exist for firms. They depend basically on the length of time the employee can be expected to work with the firm[3], the skills the employee has before undergoing the training and the extend to which the skills provided by the training complement the existing skills (Baron & Kreps (1999)). The value of the training, provided to employees, to the firm depends on the improvement of those employees' productivity. If some particular skills are critical for the performance of the company, it may pay for the company to provide those skills through training, even at the risk of loosing some trained employees to other companies.

Besides the improvement of productivity, further benefits of training exist: gift exchange, screening through training, spillovers, and reinforcing culture. With gift exchange is meant that employees might view investments in training as a gift given to them (Balkin & Richebé (2007)). By providing the training the firm has signalled its good intentions for the future. Therefore, the employee can more comfortably make investments in his relationship with the firm, thereby making the relationship more efficient. Another benefit training may provide is the screening of potential employees, since the general working conditions and employment practices offered by an organization will influence prospective employees to self-select (Baron & Kreps (1999)). Firms that offer training will attract employees who desire training. Those employees are usually persons, who want to grow in their job, value the acquisition of skills, are generally curious and are ambitious. If training is transferred from a trained employee to an untrained employee, this effect is called spillover. This spillover often happens informally. However, the employee who received the training can also be asked to give seminars in order to teach the other employees what he have learned (Dearden, Reed & Van Reenen (2006)). Finally, training might reinforce the culture of the company. Companies that want to foster a culture of a "learning organization" will reap important symbolic benefits from training their workers (Baron & Kreps (1999)).

There is little doubt that there has been a growing recognition of the importance of individual and organizational learning as a source of sustained competitive advantage (Marchington & Wilkinson (2005)). Wright & Gardner (2003) considered training as one of the most important elements of high commitment HRM. When measuring the training, the time as well as the effort devoted to learning opportunities is important. Various proxies have been used to measure the intensity of the training: the number of training days received by all workers, the proportion of workers who have been trained, the budget set aside for training, the training spending per worker, or the establishment of agreed training targets over a two-year period (Marchington & Wilkinson (2005)).

[3] The tenure will depend on various factors, like the age of the employee, the family status, the local levels of job-market, the locational mobility and the turnover rate in the company.

In a survey from the Chartered Institute of Personnel and Development (CIPD), one forth of the firms answered to train their workers at least one month per year, while 13 per cent admitted that they provided no training at all (Guest et al. (2000)). West et al. (2002) used several measures for assessing training in their study of hospitals, which were related to the amount of money spent. Guest et al. (2003) focused instead on the amount of training received by workers.

Besides the quantity aspects like time and money, it is also important to identify the type and quality of the training. It is important that the training is able to increase the individuals' skill base or to broaden their experience and that training is designed to increase the promotability within the organization (J. Delery & Doty (1996)).

Premium wages

Regarding high worker compensation, Pfeffer (1998) observes two elements in practice: higher than average compensation (premium wages) and performance-related reward, which both send a signal to employees that they deserve to be rewarded for superior contributions. In order to attract and retain high-quality workers, compensation must be at a level in excess of that for comparable workers in other organizations (Marchington & Wilkinson (2005)).

Most studies focus on incentive based pay and create various proxies related to this. Huselid (1995) includes two measures: the proportion of the workforce who has access to company incentive schemes and the proportion whose performance appraisals are used to determine their compensation. However, incentive based pay is rarely used for production workers. For example, two thirds of the respondents of the CIPD survey in the UK (Guest et al. (2000)) replied that their organizations did not make use of individual performance related pay for their non-managerial employees.

Following this study, premium wages are the compensation scheme that is used more frequently among workers, where the company pays the worker more than he would earn in the market. The idea of premium wages is very related to that of efficiency wages, for which several theories exist of why managers pay higher wages than their competitors. Some of these theories have their origin in the neoclassic economy, while others originate from sociology and psychology.

From the neoclassical view, Stiglitz (1987) presents three arguments for paying wages above the industry level: avoiding shirking, minimizing turnover and adverse selection.

The model for avoiding shirking was advanced by Shrader & Simon (1997) and is based on the assumption that workers have generally the tendency to shirk. To ensure high productivity, workers must fear significant punishment if they shirk, which would be the dismissal of the worker in the worst case. However, a layoff is only a punishment for the worker, if he cannot

find an equally paid job outside the company. If the wage in an alternative employment is similar, workers would not fear a dismissal; thus, it would not reduce their incentives to shirk. Paying the worker a wage above the industry level increases the punishment of a dismissal and achieves lower levels of shirking.

Furthermore, Salop (1979) and Stiglitz (1974) argued that higher compensation might lower the turnover. The idea is that the dismissal and recruiting of employees is costly for the company. It faces direct costs for the interviews and the recruiting process as well as indirect costs through additional training.

Finally, the adverse selection theory by Stiglitz (1987) is based on the assumption that workers know best about their own abilities. Firms, on the other hand, cannot screen applicants either before or after applying. Thus, if there exist two companies, one high paying and one low paying, all high ability workers will apply for the high paying firm, whereas low ability workers will apply to both companies. This happens because the reservation wage of the high ability workers is higher and the low paying firm is not a viable alternative to them. Therefore, the high paying firm gets on average workers with a higher ability.

Besides the neoclassical theories, premium wages can also be justified with theories from sociology (gift-exchange, fair-wage/effort) (e.g. Akerlof (1982), Rabin (1993), Dufwenberg & Kirchsteiger (2000), Fehr & Schmidt (2000)) and psychology (equity theory) (e.g. Carrell & Dittrich (1978)). However, we will limit our analysis to the neoclassical theories.

Above-industry premium wages could be empirically confirmed in various studies and have a long history. Probably the widest known example is that of Henry Ford when he introduced his five dollar day in his company, which was analyzed by Raff & Summers (1987).

2.1.3 Combinations of Human Resource Practices

It is obvious that high commitment HR practices are linked to each other. This is also true for training and premium wages. Workers are more interested in training if their efforts are rewarded with higher wages. If HR practices form a coherent and synergistic bundle, organizations are more likely to enjoy success. This is due to the fact that the high commitment paradigm is more deeply embedded into the culture of the workplace (Marchington & Wilkinson (2005)). The research of Benson & Lawler (2002) confirms the importance of viewing HR practices as complementary and that the high commitment model in general outperformed more traditional control-oriented work systems despite the fact that the exact combination of practices is uncertain and may be industry-specific.

Guest (1997) categorized attempts to examine internal fit of HR practices into three groups. The first group are criterion-specific studies, which describe a number of "best practices" and suggest that the closer organizations get to this list the better their performance will be. Following this approach, the goal is to detect the bundle that seems to works best and apply this to all organizations. Guest (1997) criticized this universalist approach as it ignores potential differences between organizations, as well as sectors and countries. The second group, following Guest (1997), is the category, "fit as gestalt", which assumes that synergies between the HR practices are only achievable with the adoption of all these practices. If one is missing, the effect will be lost. Following this theory, an organization that follows the majority of the practices would not be better off than a company that adopts none of them. Finally, the last group Guest (1997) defined as "fit as bundles", where the bundles are additive. Pfeffer (1998) suggests the same idea. Following this framework, the more practices that are in place, the better the effect, as long as some distinctive core exists. Hence it may be possible to follow a large number of high commitment HR practices and ignore others, but still gain from the interactive effect of those that are in place. However, it remains unclear how many practices are needed to make a difference and from which areas of HRM these practices must be drawn.

Summing up, there does not exist a clear theory about how to combine optimally the different high commitment HR practices to achieve the best results. However, a strong complementarity can be assumed. Due to this complementarity, we are able to formulate our first research hypothesis:

H1: Two stable HRM strategy equilibria exist: a high commitment strategy where the company is among the top firms in both training and premium wages and a low commitment strategy, in which the firm is in the lower levels of both training and premium wages. Other combinations will be, due to the complementarity of the HR practices, unstable.

2.1.4 Linking HRM and Performance

The relationship between Human Resources Management and performance is becoming a research issue of growing interest. Guest et al. (2000) developed a theoretical path model that is illustrated in figure 1. It proposes a theory linking together HR strategies on the left hand side and performance outcomes, like quality, productivity and financial performance, on the right hand side. The overall business strategy sets up the HR strategy, which defines the HR practices used in the firm, including the presented high commitment HR practices. The factor HR effectiveness evaluates how well the HR practices fit together. The chosen HR practices together with the HR effectiveness lead to HR outcomes, like increased competence, commitment and flexibility of the employees. The HR outcomes, in turn, may increase the quality of goods and services and the employees' productivity, which, in the long run, should increase the firm's financial performance. MacDuffie (1995) defines three necessary conditions

for an impact of HR outcomes on performance. First, employees must possess knowledge and skills that managers lack. Second, employees must be motivated to apply these skills and knowledge through discretionary effort. And finally, the firm's strategy can only be achieved when employees contribute such discretionary effort.

Figure 1: Model of the link between HRM and performance, Source: Guest et al. (2000)

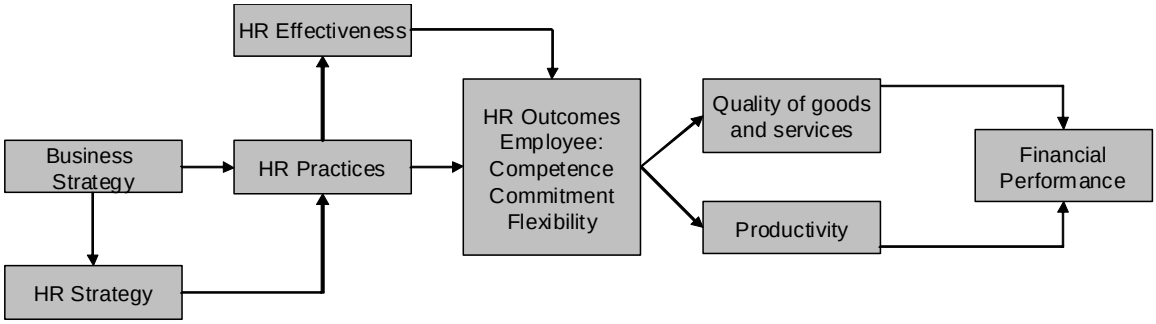


Table 1: Overview of studies, relating HRM practices and performance

Emperical Study	Sample	Nature of study	Findings
Appelbaum et al. (2000)	40 US manufacturing plants in steel, medical electronics and imaging	Cross-sectional study	High commitment work practices increased worker's trust, job satisfaction and commitment, without evidence of work intensification and higher levels of stress.
Arthur (1994)	30 US mini-mills in the steel industry	Cross-sectional study	The Mills with commitment systems had higher productivity, lower scrap rates, and lower employee turnover.
Astrachan & Kolenko (1994)	600 US family firms	Cross-sectional study	Positive correlation between HRM practices and gross firm revenues.
J. E. Delery & Doty (1996)	114 US banks	Cross-sectional study	The use of high commitment HR practices was positively related to the ROA and ROE.
Guest et al. (2000)	835 UK private sector companies with more than 50 employees	Cross-sectional study	Positive link between HR practices, HR outcomes and performance
Huselid (1995)	968 US firms with more than 100 employees	Cross-sectional study	HR practices like extensive recruitment, training and high compensation were associated with lower levels of turnover, higher productivity and better financial performance.
Patterson et al. (1997)	67 UK manufacturing firms with less than 100 employees	Longitudinal study	HRM had a greater impact on productivity and profits than other factors like strategy, R&D and quality.
West et al. (2002)	61 UK hospitals	Cross-sectional study	Negative relation between the usage of high commitment HR practices and the mortality rate
Wood & de Menezes (1998)	WERS UK Survey	Cross-sectional study	Firms that use some types of high commitment HR management performed better

In the last two decades, based on this theoretical framework, a number of studies from the US and the UK have explored the links between HRM and performance (e.g. Appelbaum et al. (2000),Arthur (1994), Becker & Gerhart (1996), Pfeffer (1994); Pfeffer (1998), Batt & Doellgast (2003); Guest et al. (2000); Huselid (1995); MacDuffie (1995); Patterson et al. (1997)). The following table 1 states a list, although not exhaustive, of the results of the studies.

A great majority of these studies find a clear positive relationship between the use of high-commitment HR practices and those companies' operating and financial performance.

Despite these findings, Guest (1997) criticizes that a clear theoretical framework explaining the relationship is still missing. On of the problems with survey research is that, although it may be possible to demonstrate links between HRM and performance, it does not offer a detailed explanation why this might happen. Furthermore, the causal effect is unclear. It could be equally true that firms with high financial performance have more resources to enforce high commitment work practices.

Therefore, in our second hypothesis, we will not postulate a causal relationship between HRM practices and performance but only a positive relationship:

H2: High commitment HRM is positively related to the workers' productivity and to the firms' performance.

2.2 Ownership structure und Human Resource Management

The attention for Corporate Governance has been growing since the early 1990s. Usually, the primary interest was directed to analyze the equity ownership structure, the legal form of the firm, and the composition of the board of directors. However, more recently, some studies have started to explore the influence of Corporate Governance on HRM practices (Gospel & Pendleton (2005), Konzelmann et al. (2006)).

Corporate Governance shapes the nature of the relations among the main stakeholders in the firm and, therefore, it plays an important part in fixing the firm's goals. Since Human Resource Management is considered to be one of the most important strategic variables for companies, it is important to know what contribution it makes to achieving the firm's objectives.

For the majority of countries in continental Europe (such as Germany, Spain and France), and the rest of the non-Anglo Saxon world, enterprises are usually controlled by their founders and/or by members of the founder's family, or by other financial or non-financial firms (Becht & Röell (1999), La Porta, Lopez-de-Silanes & Shleifer (1999)). However, little attention has been paid, so far, to the relationship between different ownership types in small and medium

enterprises (SMEs) and their strategic behavior. Hence, we want to look with closer detail on the ownership of families and corporate blockholders.

2.2.1 Family firms

We are going to follow the definition that family firms are owned by a family group to at least 50% and may be furthermore controlled by family members in the management. The competitive advantages of family ownership are analyzed with detail in the literature. Kets de Vries (1996) and Zahra, Korri & Yu (2005) mention long-term orientation, flexibility, speedy decision-making, and family culture as a source of pride and commitment as clear advantages of a family controlled firm.

However, there are also crucial disadvantages, especially regarding Human Resources. Kets de Vries (1996) points out that family firms follow, besides the business objectives, usually also personal objectives of the family members, since a high proportion of the family's wealth is invested in the business. This absence of diversification of the family's investments is expected to lead to larger risk-averse behavior (Demsetz & Lehn (1985), Fama & Jensen (1985), Donckels & Frohlich (1991)). Thus, the family members care more for control than for growth and economic performance (Storey (1994)), which can be observed in the lower growth rates of family firms when compared to non-family firms (Harris, Martinez & Ward (1994), Donckels & Lambrecht (1999))

In addition, family firms have been criticized for engaging in nepotism and, in some cases, for failing to provide management training for family members (Reid & Adams (2001)). Sometimes, especially in the UK, the CEO position is handed over to the eldest son, who may not be best suited for this position (Bloom & Van Reenen (2007)). This limits the pool of other potential candidates. Moreover, family businesses may be pressured at times to employ, promote or terminate employment for close or extended family members, which leads to inefficiencies. Family firms may prefer to employ family members in managerial positions, even if they are insufficiently qualified (Gallo & Garcia Pont (1996)). The tendency that potential managers have to compete with family members during their career and the bias of existing incentive and promotion systems towards family members (Lansberg (1983)) further reduce the attractiveness of managerial positions and leads to adverse selection (Schulze, Lubatkin & Dino (2003)). Furthermore, it may be difficult to judge family members objectively which leads to inefficient decisions and discouragement of other non-family management employees. In fact, Astrachan & Kolenko (1994) suggest that, in a global market with increasingly competitiveness, this limited organizational capability may be one key factor contributing to the short life span of family firms.

Authors like Astrachan & Kolenko (1994) argue that the special relationship between the firm and the family creates a negative influence on tasks such as employee selection, compensation, appraisal and personal development. However, Leon-Guerrero, McCann & Haley Jr. (1998) finds that this negative behaviour decreases with company size. They argue that practices such as formal employee reviews, training, written job descriptions, incentive compensation plans, and career development are used more frequently as family firms grow and develop.

Additionally, Geeraerts (1984) and Daily & Dollinger (1993) have shown that decision-making in family firms is usually centralized with little horizontal differentiation and formalisation. Many times, lines of authority remain unclear, controls are uninformed, and information systems are poorly developed.

Dierickx & Cool (1989) argue that these characteristics limit the opportunities for family firms to acquire resources, especially intangible knowledge-based assets such as technologies, well-known brands or qualified personnel.

Regarding human resources strategies, Donckels & Frohlich (1991) find that family businesses do care more about the satisfaction of their employees. However, they seem to focus less on other more progressive personnel issues such as participation by employees in decision making and ownership. Furthermore, profit sharing schemes are less represented in family firms and the training and education expenditures are lower. Finally, family businesses seem to provide less information of the manager's policy to their employees.

Another study by Reid & Adams (2001), who analyzed small and medium Northern Irish family and non-family firms, discovered that family firms are managing their HR less professional than non-family firms. Only 40 percent of the analyzed family firms had a personal or HRM department, compared to 55 percent of the non-family firms, 45 percent of the family firms have a mission statement (non-family firms: 77 percent), and 26 percent of the family firms have a HRM management plan (non-family firms: 34 percent). Regarding employee training, Reid & Adams (2001) find that family firms spend less of their wages bill on training than their non-family counterparts and that also fewer employees have access to training activities.

In sum, the theoretical findings seem to support the view of Astrachan & Kolenko (1994), that family firms, partly due to their limited organizational capability implement less HRM practices than their non-family counterparts. Hence, we formulate our third research hypothesis:

H3: The presence of family control is negatively related with a high commitment HRM strategy.

2.2.2 Corporate Blockholders

In Anglo-Saxon countries, ownership is usually very dispersed. Companies and institutional investors generally hold only small stakes in target companies. However, in continental Europe ownership is much more concentrated. Following Barca & Becht (2001), the majority of listed companies have a stockholder with a blocking minority of at least 25%. Table 2 shows a cross-country comparison of the percentage of firms with this blocking minority, also called corporate blockholders.

Table 2: Cross-country comparison of minority blockholdings in listed companies, Source: Barca & Becht (2001)

Country	Firms with 25% blocking minority
Belgium	93.7%
Austria	86%
Germany	92.5%
Netherlands	80.4%
Spain	67.1%
Italy	65.8%
Sweden	64.2%
UK	15.9%
US (NYSE)	7.6%
US (Nasdaq)	5.2%

In Spain, as stated in the table, 67.1% of the listed companies have blockholders, which increases the importance of an analysis of the effects this type of investor have on the HRM strategy. Since in Continental Europe, significant voice is given to agents committed to stable relations with the company, blockholders enjoy considerable power to control companies.

The corporate blockholder can help to finance the firm or provide collateral. Furthermore, the corporate blockholder may lower the problems of information asymmetry and opportunism in financial markets by sending a positive signal with the relationship between the firms (Allen & Phillips (2000)). In this way, companies with corporate blockholders find it easier to obtain the funds required to grow. In addition, the market anticipates that the participation of the blockholder guarantees efficient control and even financial support should the company run into difficulties. This leads to a reduction in the cost of capital and makes even more financial resources available to the firm (Fernández & Nieto (2006)).

In addition to the financial advantages a firm experiences, a corporate blockholder can provide technological, commercial and organizational knowledge that firms need to build competitive

advantages (Allen & Phillips (2000)). Furthermore, management quality will improve, because the selection of managers will be based more on objective measures (Bijmolt & Zwart (1994))

Surprisingly, there is relatively little literature, connecting human resource management with corporate blockholders. However, there is some evidence that companies with corporate blockholders tend to put more attention to the human resources management. Cyr, Johnson & Welbourne (2000) states that venture capitalists are more inclined to invest in firms where top management is engaged in the human resources management decisions. Furthermore, these venture capitalists put pressure on the firms in their investment portfolio to focus more on HRM issues. Analyzing large US companies, Johnson & Greening (1999), find that pension fund equity was positively related to people and product quality. Also, Perraudin et al. (2008) argue that corporate blockholders make markets more illiquid, which creates more job stability and increases the incentives of the workers to invest in specific human capital.

The same argumentation cannot be applied to public blockholders. When the state holds stakes in companies, politicians may cause the firms to employ excess employees (Boycko & Shleifer (1996)). Krueger (1990) supposes that firms with state ownership may be pressured to hire politically connected people rather than those best qualified to perform desired tasks. Dewenter & Malatesta (2001) argue that state owned firms may forgo maximum profits in the pursuit of social and political objectives, such as wealth redistribution and the show empirically that state owned firms have both a lower efficiency and a lower profitability than privately owned firms.

Unfortunately, for all relations, the direction of the causal effect is, again, not clear. It may be the case that investors prefer companies with higher developed Human Resource Management. Thus, we again hypothesize the relationship but not the causality relation.

H4: The presence of a corporate blockholder is positively related to a high commitment HRM strategy. However, the presence of a public blockholder is not positively related to a high commitment HRM strategy.

2.3 Effects of the ownership structure on Human Resource Management

Ownership structure is one of the key features of Corporate Governance and one of the most widely analyzed topics. Clearly, one could think that corporate strategy and performance are influenced by ownership because it is related to different degrees of risk aversion (Thomsen & Pedersen (2000)) and the firm's resource endowment (Shrader & Simon (1997)).

However, there are only a handful of studies that try to connect ownership structure with HRM strategy. One of them is the paper of Perraudin et al. (2008), who developed a theoretical framework that links the two areas.

They argue that, in general, when companies face more pressure from their investors, they have strong incentives to create shareholder value. To maximize the shareholder value, managers have to maximize financial profitability (ROE), which is the quotient of the net result and the capital employed.

As with all ratios, there are two ways to increase their financial profitability: decrease the denominator or increase the numerator. Regarding the denominator, the company can lower the capital employed by buying back shares, an option which is frequently done by listed companies (Ginglinger & L'Her (2006)). The second alternative is to increase the net result, which is the difference between total income and total costs. Since personal costs usually represent a significant fraction of the total costs, HRM practices can be used as a strategic leverage. Perraudin et al. (2008) distinguished between two strategies:

- The first strategy could be called “defensive” or “low road”. The objective is to minimize the labour costs in order to increase profits. This can be achieved by reducing the workforce, or in form of a restrictive pay policy, or through the limitation of training expenditures. Black, Gospel & Pendleton (2007) worked out a similar hypothesis and investigated the impact of stock market activity on the training effort of firms, although they do not obtain any significant results.

- The second strategy could be described as “offensive” or “high road”. This strategy acknowledges the fact that the short-term costs of human resources can, over the medium and long run, increase total income and so, both net result and financial profitability. It is based on the idea that productivity and the company’s innovation capacity can be increased through motivation of the employees and high expenditures on training, building a long-term competitive advantage. Consequently, a strategy of short-term cost minimization can be at odds with a strategy of maximizing profitability over a longer-term horizon.

Listed companies are more inclined to prevent poor short-term financial results, because any destruction of shareholder value runs the risk of provoking a fall in the stock price. Therefore, Perraudin et al. (2008) argue that listed companies might seek greater control over the variations in profit than non-listed companies. In fact, they might try to exploit the flexibility of the operating costs, especially labor costs, which can be adjusted through the use of flexible forms of employment and flexible pay practices. Firms can use the option to lower the long-term commitment with the workforce by using temporary labor arrangements, through fixed-term

contracts, temporal agency workers and subcontracting. In this way, the quantity of the work force can be adjusted in the short term.

Finally, Perraudin et al. (2008) argue that HRM practices are likely to be influenced by the requirements of the growing importance of stock market valuation. They find greater use of flexible contracts in listed companies whose capital is primarily owned by financial funds, both domestic and foreign. This theoretical reasoning fits well with our first hypothesis, which states that firms either follow a high commitment ("high road") or a low commitment ("low road") HR strategy.

Deakin & Rebérioux (2007) analyzed the relationship between ownership structure and HR strategy empirically, by comparing the ownership and HRM situation in France and Britain and distinguishing between listed and non-listed firms and the presence of institutional investors. They find that British companies, due to weak labour laws and intense financial pressures, are unwilling to enter into long-term commitments with employees, and favour a strategy of cost-cutting and labour intensification, or "low-road" approach.

However, they argue that the situation for listed companies in France is quite different, due to much weaker financial pressures. Furthermore, they find that listed companies use more subcontractors, but interestingly less fixed-term workers and more full-time workers than non-listed firms. Furthermore, the (hourly) wage levels were higher in the listed firms with stronger stock market pressures. Being listed was positively linked to higher levels of training expenditure and, additionally, the workforce in listed companies appeared to be smaller, after controlling for company size and other factors.

The resulting HRM profile in France is then characterized by two features. First, stock market pressures favour a strong variabilization of labor costs, achieved through wage flexibility and the intense use of temporary contracts. For the latter, the use of subcontraction is used more frequently than fixed-term contracts. Second, listed companies tend to adopt a "high-road" rather than a "low-road" approach towards dealing with labor costs, paying a premium above the industry wage, combined with high training expenditures. Hence, listed companies seem to limit the amount of "core" employees, in which they invest heavily, and outsource the remaining work to subcontractors.

Since Spanish firms share a number of features with French firms concerning financial pressure and investor structure, we should expect a positive relation between a stock market listing and the use of a high commitment HR strategy.

3 Research Methodology

While most studies working with Human Resources data use cross-sectional data (see table 1), we will do a longitudinal approach. This enables us to observe differences in the individual behaviour and the chosen strategy across time. Furthermore, we are able to observe trends in the whole sample within the chosen time span.

3.1 Sample

The source of the empirical work is the ESEE (Encuesta Sobre Estrategias Empresiales), a firm-level panel of data compiled by the Spanish Ministry of Science and Technology from 1991 to 2007. The survey covers a wide range of Spanish manufacturing firms operating in all industry sectors. It is an unbalanced panel, since for various firms, observations are missing for some years due to several reasons, like mergers, changes to non-industrial activity, cession of production, or, non-response. Furthermore, new companies enter the survey each year to maintain the representativeness of the industry over the whole population. For the data collection, a questionnaire with direct interviewers was used. The coverage of the data set is mixed. A random sample is drawn for small companies (with less than 200 employees), keeping the sample representative of the industrial distribution, whereas the sample is complete for large firms (more than 200 employees). The data was used in several studies, mainly related to R&D and internationalization strategy.

Since data for training expenditures are only available from 2001, we will use data from 1999 to 2007. The years 1999 and 2000 are included for the possibility of lagged effects.

3.2 Variables

In order to test our hypotheses, we make use of a great variety of variable supplied by the ESEE survey, which are summarized and explained in table 3. Furthermore, in table 4, the descriptive statistics for these variables are shown.

In order to define the used HR strategy, we use the two variables explained in the theory: training expenditure and premium wage. Regarding training expenditures, we can observe that while 58.9 percent do not spend nothing on training at all, the average expenses are €83.89 per worker and year.

The premium wage is calculated as the residual of the following regression: $WAGE = \alpha + \beta_1 CPIND + \beta_2 PIL + \beta_3 PTIM + \beta_4 GEFTPP + \varepsilon(PW)$, where CPIND is the average wage of the industry, PIL is the fraction of engineers and advanced title holders in the

Table 3: The used variables and their explanations

Variable	Description
HR Strategy Variables	
GEFTPP	Total spending per worker in external training
PW	Premium Wage
Independent Variables	
FAMILI	Dummy variable with the value 1, if a family group participates actively in the control or the management of the company
PAFDG	States the number of family owners that are employed in management positions
BLOCK	Dummy variable with the value 1, if another company holds a voting block of at least 25%
FORBLOCK	Dummy variable with the value 1, if a foreign company holds a voting block of at least 25%
PUBBLOCK	Dummy variable with the value 1, if the state holds a direct or indirect voting block of at least 25%
PERSOC	Dummy variable with the value 1, if the firm belongs to a company group
COTBOL	Dummy variable with the value 1, if the firm is listed on the stock exchange.
Control Variables	
SIZE	The natural logarithm of the total number of employees to control the effects of firm size
AGE	The firm's age variable used to control for its level of experience and accumulated resources.
COMPETITON	The level of competition to which the company is exposed. It is measured by the average degree of competition in the three mayor markets of the firm. Competition is measured categorical, where 1 represents 10 or less competitors, 2 represents between 11 and 25 competitors, 3 represents more than 25 competitors and 4 stands for an atomized market.
GIIDPP	Spending for R&D per worker that is conducted internally
GEIDPP	Spending for R&D per worker that is conducted externally
GIIDFRAC	Fraction of the total R&D expenses that are conducted internally. A higher fraction of internal R&D suggests that a company makes higher investments into their workforce giving them more responsibilities.
NO_RD	If a firm does not conduct any R&D activities at all, this dummy variable takes the value 1
IPRB	Dummy variable with the value 1, if the firm in the actual period has achieved process innovations
NIPB	Dummy variable with the value 1, if the firm in the actual period has achieved product innovations
EXPORT	Dummy variable with the value 1, if the firm is exporting in period t.
NACECLIO	Representative code for the principal activity of the firm. It follows an aggregation of the 3-digits CNAE-93 codes to the 20 manufacturing sectors that are displayed in table 5
FORJUR	Indicates the legal form of the company – 1: private company, 2: public company/corporation, 3: private limited company, 4: workers cooperative, 5: cooperative, 6: other
Workforce characteristics	
PIL	Proportion of engineers and workers with university degrees
PTIM	Proportion of workers with medium titles
PERE	Share of temporal staff in the company
PERFTC	Share of permanent full time staff in the company
PERFTP	Share of part time staff in the company
PERETT	Share of subcontracted staff
Performance variables	
PTN	Productivity per worker, measured as value added per worker (in 1,000 €)
MBE	Gross operating margin, profitability of the company, defined as the percentage of the amount of sales, stock variations, and other income less purchases, external services and personnel costs, divided by the total sales, stock variations and other income. It is calculated as MBE = ((Value Added – Personal Costs)/Production and other Income) * 100
EXPORT	Dummy variable with the value 1, if the firm is exporting
SALESGROWTH	Sales growth rate between the last period and the actual period
EXPORTGROWTH	Export growth rate between the last period and the actual period
EXPORT_SALES	Fraction of the sales that are classified as exports. The higher the number, the more the company is focused internationally.

Table 4: Descriptive statistics

	N	Mean	Std. Deviation	Minimum	Maximum
GEFT PP	12117	83.89	413.93	0	27272,73
PW	12020	0	18385.21	-90700.5	1452481
FAMILI	18197	0.35	0.48	0	1
PAFDG	15757	0.66	0.95	0	4
BLOCK	20071	0.36	0.48	0	1
FORBLOCK	15739	0.19	0.39	0	1
PUBBLOCK	20502	0.01	0.10	0	1
PERSOC	20098	0.36	0.48	0	1
COTBOL	20641	0.02175	0.146	0	1
SIZE	15757	4.29	1.51	0	9.62
AGE	21259	24.79	20.59	0	172
COMPETITION	15663	1.98	1.14	1	4
GEIDPP	15734	455.17	2248.65	0	54458.82
GIIDPP	15689	762.77	2567.48	0	92299.57
GIIDFRAC	15685	0.25	0.40	0	1
NO_RD	15738	0.63	0.48	0	1
IPR	15757	0.32	0.46	0	1
NIPB	15464	0.22	0.41	0	1
PIL	19985	5.38	8.14	0	83.3
PTIM	19985	6.60	9.78	0	100
PERE	15757	0.16	0.20	0	1
PERFTC	15757	0.79	0.21	0	1
PERFTP	15757	0.02	0.06	0	1
PERETT	15700	0.03	0.89	0	111.25
EXPORT	15691	0.63	0.48	0	1
SALESGROWTH	12531	1.08	0.55	0	30.73
EXPORTGROWTH	8002	2.69	30.04	0	869
EXPORT_SALES	15656	0.19	0.26	0	1
PTN	15661	45.52	38.40	0.2	875.9
MBE	15717	8.73	14.26	-688.1	73.7

company, PTIM is the fraction of workers with a medium title and GEFTPP is the average spending of training on each worker. WAGE is the average wage, an employee in the investigated firm earns. In this way, the wage is controlled by industry, the human capital in the company and the investments in training. If the wage is significantly above the predicted wage for a given industry, human capital endowment and training expenditures, it can be considered as a premium wage.

According to the theoretical framework, different independent variables are included into the empirical model. Ownership structure is proxied by various variables defining the owners of the company, in particular family ownership, the presence of a corporate, foreign and public blockholders and the listing on the stock exchange. We find that, in our sample, 35% of the firms are controlled by a family group and, on average, 0.66 family members work in the management. Furthermore, we can observe that, on average, national firms control 31.57% of the companies, while foreign capital owns 17.64% and state capital has stakes of 0.77%. Since

the survey includes mainly small and medium enterprises, most of these firms are not listed in the stock exchange, leading to a positive value in only 2.17% of the cases. Finally, 36% of the firms are members of a company group.

Additionally, the model is supplemented by exogenous control variables, which have a theoretical and empirically supported impact on the human resources strategy: the companies' size and age, the degree of competition, the R&D spending, the export orientation and the growth rate. From table 4, we can observe that the average firm in the sample has a size of 73 employees and an age of 24.97 years. 37% of the firms are conducting R&D, from which 25% is done internally. As a result, 32% of the companies have yearly process innovation and 22% improve their products each year on average.

Table 5a: Distribution of the 20 industries in the sample

NACECLIO	Industry	Frequency	Percentage
1	Meat industry	423	2.68
2	Food and tobacco	1447	9.18
3	Beverages	283	1.80
4	Textiles and clothing	1367	8.68
5	Leather and footwear	426	2.70
6	Wood industry	537	3.41
7	Paper industry	501	3.18
8	Editing and printing	856	5.43
9	Chemicals	1010	6.41
10	Rubber and plastic products	870	5.52
11	Non-metallic mineral products	1146	7.27
12	Ferrous and non ferrous metals	550	3.49
13	Metal products	1806	11.46
14	Agricultural and industrial machinery	1150	7.30
15	Office machines and data processing	216	1.37
16	Electrical engineering	924	5.86
17	Motor vehicles	811	5.15
18	Other transport equipment	332	2.11
19	Furniture industry	802	5.09
20	Other manufacturing industries	300	1.90

Table 5b: Distribution of the 6 legal forms in the sample

FORJUR		Frequency	Percentage
1	Private company	119	0.76
2	Public company/Corporation	9,145	58.04
3	Private limited company	5821	36.94
4	Workers cooperative	278	1.76
5	Cooperative	221	1.40
6	Other	173	1.10

In order to analyze the influence of the HR strategy on the workforce characteristics, we include furthermore the proportion of engineers and medium title workers in the workforce, and the shares of temporal staff, full-time staff, part-time staff and subcontracted staff. We find that, on average, 5.38% of the employees are engineers or have a university degree, while 6.60% have a

medium title. 16% of the workers are, on average, temporal staff, 79% are full-time and 2% part-time employed. 3% of the staff is subcontracted.

Moreover, to measure the relation of HR strategy and companies' performance, we collect information on the export propensity, growth rates, profitability (gross operation margin) and productivity (productivity per worker as value added) of the firms. We observe that 63% of the firms are exporting and export grow at an average rate of 169% per year. This high value is biased by a few firms that experienced extreme export growth rates. The average sales growth rate is 8% and the firms in our sample export on average 19% of their sales. Regarding productivity, the average value added per worker is 45,520€ and the average profitability of the firms is 8.73%.

Finally, we include industry and legal form dummies to control for legal and industry specific effects. Table 5a shows the distribution of the 20 industries in the sample, while table 5b shows the distribution of the legal forms. We can observe that the firms are evenly distributed over the industry, with a slight focus on metal products, food and tobacco and textiles. Regarding the legal forms, there is a clear dominance of public and private limited companies. Disproportionally few firms follow the legal forms of workers cooperatives (in Spanish: Sociedad anónima laboral (SAL)) and cooperatives.

3.3 Analysis technique

The analysis consists of three steps. First, we analyze the HRM strategy of the firms. For this purpose, we concentrate on two variables: premium wages and average training per worker. We calculate the industry averages and quartiles of both variables and can classify the firms in a three-by-three matrix, as shown in figure 2.

Figure 2: Classification of the HR strategy

Training \ Salary	Low wages (lower 25% of industry)	Medium wages (middle 50% of industry)	Premium wages (top 25% of industry)
No training	Low commitment HRM (Lowest)	Low commitment HRM	Transition state
Training per worker low 75% of industry	Low commitment HRM	Transition state	High commitment HRM
Training per worker top 25% of industry	Transition state	High commitment HRM	High commitment HRM (Highest)

We define firms, which are in the top 25% quartile in either training or salary and at least in the middle 50% in one of them, as firms with a high commitment HRM strategy. If firms are among the top companies in both areas, they follow a highest commitment HRM strategy. Companies that pay wages below the average and moreover do not train their workers, are classified as companies with a lowest commitment HRM strategy. We also classify firms as low commitment HRM if they are in the medium area in either wages or training but in the low area in on of it. Firms with high training expenditures and low salaries, or vice versa, or with medium commitment in both dimensions are classified as being in a state of transition; either aiming for a high or a low commitment HRM strategy.

As a second step, the long-term effects of a chosen HRM strategy are evaluated, in particular the company's performance, growth rates, export propensity and productivity. Of special interest are companies that changed their HRM strategy from low commitment to high commitment or vice versa. We will analyze the changes in performance especially for those firms.

Finally, we want to investigate the relationship between the ownership structure and the choice of the HRM strategy. Especially the prevalence of family firms and corporate blockholders is of our interest. For this reason, we run logit regressions, with the high commitment HRM strategy as the dependent variable and the ownership variable as independent variables.

4. Results

4.1 The HR Strategies of the Firms

We start the discussion of the results with an overview of the HR strategies the firms in the sample pursue, as shown in table 6. We can observe that the majority of the firms (19.48%) are in the lower quartile of wages and do not supply training to their workers (group 1). Together with the firms of group 2 and group 4, these companies follow a low commitment HRM strategy, and represent 55.03% of all observations, as shown in table 7. On the other hand, 2,448 firms (20.37%) follow a high commitment HRM strategy from which 5.29% are in the top groups in both training spendings and premium wages. Furthermore, many firms (24.60%) are found in a transition state. These firms are in the top groups of either training spendings or premium wages but not in both dimensions.

Table 8 shows a comparison of the means in the of HR strategies. We put special focus on the comparison of the variables between firms with a low commitment HR strategy and the firms with a high commitment HR strategy. Most differences, tested with an ANOVA test, were statistically significant with 99% confidence.

Table 6: Distribution of the firms' HR strategies

	Low wages	Medium wages	Premium wages
No training	**1: Lowest Commitment HRM** 2341 (19.48%)	**2: Low Commitment HRM** 3737 (31.09%)	**3: Transition State** 1020 (8.49%)
Low training	**4: Low Commitment HRM** 537 (4.47%)	**5: Transition State** 1810 (15.06%)	**6: High Commitment HRM** 1349 (11.22%)
High training	**7: Transition State** 127 (1.06%)	**8: High Commitment HRM** 463 (3.85%)	**9: Highest Commitment HRM** 636 (5.29%)

Table 7: Aggregated distribution of the three HR strategies

	Frequency	Percentage	Cumulated
Low commitment HRM	6,615	55.03%	55.03%
Transition State	2,957	24.60%	79.63%
High Commitment HRM	2,448	20.37%	100%

An interesting fact is that the family influence is lower for high commitment firms. Only 22.2% of the firms are controlled by families, compared to 40.0% for low commitment companies. Additionally, less family members are employed in the management of the firm (0.22 members compared to 0.87 members). Furthermore, a higher fraction of the high commitment firms have corporate blockholders (70.4% compared 17.2%), foreign blockholders (45.0% to 5.2%) the state as a blockholder (1.2% to 0.4%). Firms following a high commitment HR strategy are also more frequently member of a company group (72.4% to 16.0%). We can also observe that firms that follow a high commitment HR strategy are more frequently listed in the stock exchange (5.6% compared to 0.7%).

Firms that have a high commitment HR strategy are on average larger (274 compared to 34 employees) and older (36.4 to 20.5 years). Moreover, high commitment firms are exposed to a lower degree of competition (1.608 to 2.207). This may be due to the fact that high commitment firms are more innovative and more diversified.

Regarding the R&D spendings, we can observe that high commitment firms spend more on R&D per worker both externally and internally (1179.9 to 149.2 and 1780.7 to 296.0). Furthermore, they conduct relatively more research internally (45.2% compared to 11.4%) and less firms conduct no R&D at all (31.0% compared to 82.1%). The higher spending on R&D results in more process (45.1% to 21.3%) and product innovation (34.2% to 11.7%)

Regarding the characteristics of the workforce, we can observe that high commitment firms employ more engineers and employees with university degrees (7.9% to 4.3%), more workers

with medium title (8.8% to 5.4%) and they make more use of direct recruiting from university (49.8% to 12.0%). They use less temporal staff (9.4% to 17.4%), less part time staff (1.2% to 2.4%) and more full time staff (88.7% to 74.6%). For the use of subcontracted staff, no statistically significant difference can be found.

Finally, we can observe that more firms with a high commitment HR strategy export their products than firms with a low commitment HR strategy (89.7% compared to 47.3%). Additionally, the export orientation, measured by the exports over the sales is higher for high commitment companies (33.6% compared to 11.4%). Regarding the performance variables, we can observe that the firms with a high commitment HR strategy have a clearly higher productivity per worker (75.4 compared to 34.1). Additionally, the gross operating margin is slightly but significantly higher (9.9 to 8.0). No statistical significant difference can be observed for sales and export growth.

Table 8: Comparison of means for the three HR strategies

	HRMGROUP=1 Low Commitment	HRMGROUP=2 Transition	HRMGROUP=3 High Commitment
GEFTPP	6.895	104.093	264.408***
COTBOL	0.007	0.027	0.056***
BLOCK	0.172	0.492	0.704***
FORBLOCK	0.052	0.238	0.450***
PUBBLOCK	0.004	0.012	0.012***
PERSOC	0.160	0.485	0.724***
FAMILI	0.400	0.342	0.222***
PAFDG	0.896	0.593	0.339***
SIZE	3.530	4.796	5.612***
AGE	20.499	29.373	36.439***
COMPETITION	2.207	1.840	1.608***
GEIDPP	149.234	580.586	1179.866***
GIIDPP	295.955	1058.977	1780.744***
GIIDFRAC	0.114	0.340	0.452***
NO_RD	0.821	0.506	0.310***
IPR	0.213	0.359	0.451***
NIPR	0.117	0.272	0.342***
EXPORT	0.473	0.769	0.897***
EXPORT_SALES	0.114	0.245	0.336***
PIL	4.257	6.033	7.911***
PTIM	5.407	7.505	8.803***
PERE	0.174	0.127	0.094***
PERFTC	0.746	0.835	0.887***
PERFTP	0.024	0.015	0.012***
PERETT	0.031	0.029	0.028
PTN	34.149	51.804	75.402***
MBE	8.01	8.634	9.923***
SALESGROWTH	1.076	1.080	1.103
EXPORTGROWTH	1.973	2.287	3.630

Notes:

*** F-test is significant at the 0.01 level

** F-test is significant at the 0.05 level

* F-test is significant at the 0.10 level

Next, we analyze the stability of the HR strategy groups. In table 9, the yearly distribution of the groups over is shown. It can be observed that, over the years, the number of firms in the high commitment HR group (3) increases, while the number of firms in the low commitment HR group (1) decreases. While in 2001 only 15.65% are following a high commitment HR strategy, the fraction has increased to 25.01% by 2007.

Table 9: Distribution of the HR strategies over time

HRMGROUP	2001	2002	2003	2004	2005	2006	2007	Total
Low Commitment HRM	1,025	981	780	746	1,026	1,084	973	6,615
%	60.29	58.32	57.23	54.97	54.17	53.74	48.48	55.03
Transition State	409	400	327	334	455	500	532	2,957
%	24.06	23.78	23.99	24.61	24.02	24.79	26.51	24.6
High Commitment HRM	266	301	256	277	413	433	502	2,448
%	15.65	17.9	18.78	20.41	21.81	21.47	25.01	20.37
Total	1,700	1,682	1,363	1,357	1,894	2,017	2,007	12,020
%	100	100	100	100	100	100	100	100

Table 10: Transition Matrix – 2001 to 2007

2001 HRMGROUP		2007 HRMGROUP 1	2	3	Total
1	N	420	142	50	612
	%	68.63	23.20	8.17	100.00
2	N	33	97	124	254
	%	12.99	38.19	48.82	100.00
2	N	4	30	135	169
	%	2.37	17.75	79.88	100.00
Total	**N**	457	269	309	1,035
	%	44.15	25.99	29.86	100.00

Table 10 shows the individual stability of the HR strategies. The rows indicate which HR strategy the firms in the year 2001 pursue and the columns show which strategy the same firms follow in the year 2007. We can observe that the low commitment and high commitment strategies are quite stable. 68.63% of the firms following a low commitment HR strategy in 2001 still follow this strategy in 2007. Similarly, 79.88% of the firms that followed a high commitment strategy in the year 2001 still pursue the same in the year 2007. 8.17% of the firms with a low commitment HR strategy in 2001 have changed to a high commitment strategy in 2007, whereas only 2.37% of the firms with a high commitment HR strategy in 2001 switched to a low commitment HR strategy in 2007. The transition states are less stable. Here, only 38.19% still follow the same strategy. Many firms have changed either to the low commitment (12.99%) or to the high commitment HR strategy (48.82%).

The results suggest that high commitment and low commitment HR strategies coexist and are relatively stable, compared to the transition state. Hence, we can confirm the first hypothesis.

4.2 High Commitment HR and Performance

Next, we want to analyze the relation of the HR strategies to the companies' performance. For this reason, we define two dummy variables, signalling the use of a high commitment HR strategy. The first variable is HIGHHRM, which takes the value 1, of a firm pursues a high commitment HR strategy and the value 0 for both low commitment HR and transition state. In contrast, the variable HIGHHRM-REDUCED, which again takes the value 1 if a firm pursues a high commitment strategy, now, takes the value 0 only if the firm follows a low commitment HR strategy. Therefore, firms in the transition state are omitted. We choose to use two variables to carry out two different partitions inside the population of firms. By excluding the firms in transition in the second measure, we hope to get clearer evidence of the differences and we think this can help us to clarify some of the effects between the HR strategy and performance across firms.

We use various measures of performance, the workers' productivity (PTN), the gross operating margin (MBE), the sales growth, the export propensity and the export growth. The correlation matrix in table 11 shows that the use of a high commitment HR strategy is correlated positively and statistically significant to both workers' productivity and to the gross operating margin, which are also correlated strongly to each other. Furthermore, it is correlated statistically significant to the export propensity and, slightly, to export growth. However, sales growth is not related to the use of high commitment HRM.

Table 11: Correlation Matrix - HR strategy and performance

	HIGHHRM	HIGHHRM-REDUCED	PTN	MBE	SALES-GROWTH	EXPORT	EXPORT GROWTH
HIGHHRM	1						
HIGHHRM-RED.	1	1					
PTN	0.3602***	0.4352***	1				
MBE	0.0475***	0.0553***	0.5002***	1			
SALESGROWTH	0.0172	0.0187	0.0231**	0.0149	1		
EXPORTB	0.2771***	0.3811***	0.245***	0.0433***	-0.0073	1	
EXPORTGROWTH	0.0239*	0.0262	0.0083	0.0018	0.0182	-0.017	1

Notes:

*** Correlation is significant at the 0.01 level

** Correlation is significant at the 0.05 level

* Correlation is significant at the 0.10 level

To control for the influence of other variables, we perform regressions. Since the same firms were asked repeatedly over various years, the observations are not independent and we cannot use a pooled regression. In order to see the isolated effect of the HR strategy, we therefore use panel data regressions.

Furthermore, we include a number of control variables, which could have an influence on the firms' performance as well. First, the size and the age are included. Second, we incorporate the degree of competition, because strong competition might lower the profitability. Third, we control for the ownership structure, in particular family control, corporate and foreign blockholders and public ownership. Fourth, the human capital of the firms is incorporated by the fraction of engineers and medium title workers. Finally, industry and legal form dummies are included into the model.

Regarding the estimators, we start our analysis with random effects. However, a statistically significant Hausman test revealed that an estimator with fixed effects may be more consistent. Additionally, we apply the modified test of Wald for Heteroskedasticity and a Wooldridge test for autocorrelation. While we find significant heteroskedasticity in our data, we do not find any evidence for autocorrelation. We therefore apply a model using Panel Corrected Standard Errors (PCSE)[4] controlling for heteroskedasticity and fixed effects with year-dummies and thus controlling for macroeconomic effects.

However, fixed effects could be problematic because of the high number of firms and the relative low numbers of years. For this reason, we present the results of the fixed effects model parallel to the random effects model.

For the random effect models (1) and (2), which are shown in table 12, we see that both proxies of high commitment HRM, HIGHHRM and HIGHHRM-REDUCED have a statistically significant positive influence on the productivity per worker. Regarding the controls, the models show that the size and the age of the firm, a corporate and a foreign blockholder and qualified staff have a positive influence on the workers' productivity. The results suggest that bigger and older firms have optimized their operations and are able to obtain a higher productivity. Furthermore, corporate and foreign blockholders may exert pressure to improve the company's operations. The effect of state ownership is negative, confirming our hypothesis that the objective of a public blockholder is not to maximize performance, including productivity. For the degree of competition and family ownership no statistically significant effect on the productivity per worker can be found. The models are capable of explaining 29.0% and 33.2% of the workers' productivity variance.

The PCSE models (3) and (4) with fixed effects show very similar results. Again, the variables HIGHHRM and HIGHHRM-REDUCED are highly significant positive related with productivity. Interestingly, the relation between competition and productivity is now negative. An explanation for this puzzling result might be measurement problems for the competition and productivity variable. First, the competition variable is measured in an ordinal way and does not

[4] For more technical information on PCSE, see e.g. Beck (2001)

incorporate the market share of the firm. Thus it is not clear if the firm, in a competitive market is the market leader or has only a minor market share. Second, productivity is measured as value added per worker. Firms, in highly competitive industries, may be able to obtain only a small margin between input and output prices and therefore experience a smaller value added per worker, resulting in lower degrees of productivity.

Table 12 also shows the results for the gross operating margin as dependent variable. Again, in the random effects model (5) and (6), the variables HIGHHRM and HIGHHRM-REDUCED are statistically significant and have a positive influence on the profitability. Regarding the controls, company size has a significant positive relation with profitability in model (5) but not in model (6). The same happens with the company age, which has a statistically significant negative effect of profitability in model (5) but not in model (6). The observed differences between model (5) and model (6) may be due to the fact that model (6) excludes the firms in transition state and, therefore, less observations are included. Another explanation may be that outliers lower the significance of the AGE- and SIZE-coefficients. Regarding the existence of the state as a blockholder, both models find a statistically significant negative effect on workers' productivity. However, in contrast to the models (1) and (2), corporate and foreign blockholders have no significant effect on the profitability. For the human resources, interestingly, only the fraction of medium title workers have a significant effect on the profitability, while the fraction of engineers does not have a significant influence. The models explain with 2.6% and 2.8% only a small fraction of the variance of the profitability.

The models (7) and (8) show the PCSE estimations. Both variables HIGHHRM and HIGHHRM-REDUCED are statistically significant. In contrast to the models (5) and (6), competition becomes statistically significant negative. This makes sense, since firms in high competitive industries usually have a lower profitability. Furthermore, the presence of a foreign blockholder, is negatively related to profitability. An explanation may be that foreign blockholders put pressure on firms to invest more today, especially in Human Resources, lowering the profitability now, in order to obtain higher rates of profitability in the future. More dynamic analyzes should be run to confirm this. Finally, the human capital endowment, again, is highly significant related to profitability.

Analyzing the export propensity, the models (9) and (10) show that the proxies of high commitment HRM, HIGHHRM and HIGHHRM-REDUCED, are statistically significant and have a positive effect on the export propensity. Furthermore, company size, age and the presence of corporate and foreign blockholders influence the export probability positively. However, for the presence of the state as a blockholder, no statistically significant effect on exports can be found. The models explain 60.8% and 58.7% of the variance are therefore capable to predict exports quite well.

Table 12: HR strategy and performance

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	Productivity (PTN)	Productivity (PTN)	Productivity (PTN)	Productivity (PTN)	Profitability (MBE)	Profitability (MBE)	Profitability (MBE)	Profitability (MBE)
Estimator	Random effects	Random effects	PCSE, Fixed effects	PCSE, Fixed effects	Random effects	Random effects	PCSE, Fixed effects	PCSE, Fixed effects
HIGHHRM	10.583***		20.960***		1.842***		1.506***	
	(0.000)		(0.000)		(0.009)		(0.000)	
HIGHHRM-REDUCED		15.723***		24.891***		1.023**		1.645***
		(0.000)		(0.000)		(0.033)		(0.005)
SIZE	2.025***	1.856***	2.187***	2.075***	0.463**	0.374	0.371**	0.472*
	(0.000)	(0.006)	(0.000)	(0.000)	(0.031)	(0.148)	(0.034)	(0.056)
AGE	0.194***	0.173***	0.049**	0.042	-0.022*	-0.017	-0.016**	-0.010
	(0.000)	(0.000)	(0.041)	(0.164)	(0.072)	(0.231)	(0.049)	(0.316)
COMPETITION	-0.030	-0.261	-0.762***	-0.728**	-0.010	-0.153	-0.262*	-0.321*
	(0.931)	(0.519)	(0.008)	(0.030)	(0.953)	(0.429)	(0.085)	(0.084)
FAMILI	1.086	2.098	0.271	0.742	0.615	0.909	0.556	0.478
	(0.407)	(0.157)	(0.683)	(0.346)	(0.222)	(0.111)	(0.149)	(0.324)
BLOCK	3.196***	2.111**	4.501***	3.108**	0.271	0.059	0.374	-0.476
	(0.006)	(0.049)	(0.000)	(0.019)	(0.612)	(0.928)	(0.333)	(0.317)
FORBLOCK	8.364***	9.698***	4.665***	5.066**	-0.670	-1.187	-1.061**	-1.698***
	(0.000)	(0.000)	(0.009)	(0.046)	(0.324)	(0.154)	(0.031)	(0.008)
PUBBLOCK	-16.531***	-21.906***	-24.945***	-33.946***	-5.154**	-7.641**	-7.877***	-11.863***
	(0.007)	(0.003)	(0.000)	(0.000)	(0.040)	(0.011)	(0.001)	(0.000)
PIL	0.618***	0.638***	0.853***	0.839***	0.040	0.043	0.078***	0.074***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.151)	(0.171)	(0.007)	(0.008)
PTIM	0.095**	0.090*	0.318***	0.297***	0.043**	0.045**	0.072***	0.073***
	(0.018)	(0.061)	(0.000)	(0.000)	(0.024)	(0.048)	(0.000)	(0.000)
Industry dummies	Included	Included	Included	Included	Included	Included	Included	Included
Legal form dummies	Included	Included	Included	Included	Included	Included	Included	Included
Constant	15.263**	13.131	30.994***	33.341***	3.850	6.116*	7.903	10.809
	(0.027)	(0.101)	(0.001)	(0.006)	(0.168)	(0.064)	(0.000)	(0.000)
N	9309	6999	9309	6999	9335	7023	9335	7023
R^2	0.290	0.332	0.315	0.350	0.026	0.028	0.032	0.033

Notes: p-value in brackets

*** $p < 0.01$

** $p < 0.05$

* $p < 0.10$

Model	(9)	(10)	(11)	(12)	(13)	(14)
Dependent variable	Export Propensity	Export Propensity	Export Growth	Export Growth	Export Growth	Export Growth
Estimator	Logit	Logit	Random effects	Random effects	PCSE, Fixed effects	PCSE, Fixed effects
HIGHHRM	0.364*		2.081*		1.118	
	(0.067)		(0.091)		(0.285)	
HIGHHRM-REDUCED		0.751***		1.298		-0.083
		(0.002)		(0.556)		(0.959)
SIZE	1.506***	1.372***	0.044	0.314	0.053	0.473
	(0.000)	(0.000)	(0.950)	(0.734)	(0.841)	(0.357)
AGE	0.014***	0.011**	0.079**	0.098**	0.039	0.058
	(0.003)	(0.026)	(0.036)	(0.038)	(0.248)	(0.233)
COMPETITION	-0.006	0.006	-0.647	-0.706	-0.361	-0.484
	(0.910)	(0.923)	(0.257)	(0.345)	(0.139)	(0.136)
FAMILI	0.327*	0.271	0.089	0.949	0.186	0.354
	(0.057)	(0.142)	(0.959)	(0.660)	(0.844)	(0.798)
BLOCK	0.430**	0.514**	-3.042**	-4.031*	-2.462	-3.478
	(0.035)	(0.029)	(0.043)	(0.051)	(0.101)	(0.132)
FORBLOCK	1.399***	1.535***	3.747**	5.513**	3.547*	4.814*
	(0.000)	(0.000)	(0.048)	(0.032)	(0.050)	(0.077)
PUBBLOCK	-1.305	-1.347	11.697	-0.019	4.182	-1.026
	(0.128)	(0.173)	(0.110)	(0.998)	(0.124)	(0.557)
PIL	-0.001	0.003	0.005	0.014	0.023	0.023
	(0.920)	(0.741)	(0.960)	(0.903)	(0.724)	(0.802)
PTIM	0.021***	0.019**	-0.035	-0.039	-0.039	-0.036
	(0.003)	(0.013)	(0.538)	(1.000)	(0.101)	(0.215)
Industry dummies	Included	Included	Included	Included	Included	Included
Legal form dummies	Included	Included	Included	Included	Included	Included
Constant	-2.641***	-2.060	-0.828	-4.954	-1.056	-3.300
	(0.003)	(0.111)	(0.925)	(0.669)	(0.782)	(0.481)
N	9301	7000	4571	3230	4571	3230
R^2	0.608	0.587	0.006	0.008	0.007	0.010

Notes: p-value in brackets
*** $p < 0.01$
** $p < 0.05$
* $p < 0.10$

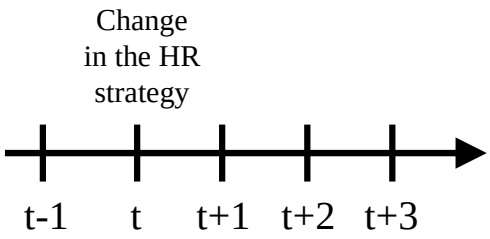
Finally, we use a model with the export growth as dependent variable (models (11) and (12)). Here, only the variable HIGHHRM is statistically significant at 90% confidence, while HIGHHRM-REDUCED, although with a positive sign, is not statistically significant. Surprisingly, the presence of a corporate blockholder has a statistically significant negative effect on the export growth. This may be due to the fact that national corporate blockholders are more focused on the national market. This argument is supported by the fact that effect of a foreign blockholder on the export growth is statistically significant positive at 95% confidence. For the rest of the control variables we cannot find any significant relation to the export growth.

Also the PCSE models (13) and (14) are not able to improve the result. Here, only foreign blockholders have a significant positive effect on export growth. Furthermore, the explanatory power in all models is very low. We have to conclude that export growth and the choice of the HR strategy are not related.

In summary, we find a positive relationship between the use of a high commitment strategy and both the workers' productivity and the gross operating margin. Therefore, we can confirm the second hypothesis.

Next, we will look especially at firms that have changed their HR strategy from low commitment or from a transition state to high commitment and vice versa. We want to know if these companies are experiencing superior results in the years after the switch to the new strategy. Figure 3 illustrates this idea. The HR strategy is changed in period t towards a high commitment strategy or towards a low commitment strategy. We then observe the workers' productivity and the firms' profitability in the periods *t-1*, *t*, *t+1*, *t+2* and *t+3*. The results are presented in table 13.

Figure 3: Chronology of a HR strategy change



For the switch towards a high commitment HR strategy, we observe two characteristics. First, the firms changing their strategy in period *t*, already show higher levels of productivity and profitability in the period before (*t-1*). This suggests that firms that are considering a high commitment HR strategy, already have a more productive workforce and more profitable operations. Second, while for the control group, without strategy changes, the productivity and profitability remains nearly constant, the firms that switch to the high commitment strategy

increase significantly both their productivity from 59.84 in *t-1* to 74.00 in *t+3* and their profitability from 9.28 in *t-1* to 9.72 in *t+3*.

Table 13: Productivity and profitability during a strategy change

	Period	t-1		t		t+1		t+2		t+3	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
PTN	Strategy change (low to high)	524	59.84	526	63.72	375	64.21	259	68.41	178	74.00
	Control group	10288	44.64	11448	46.12	8766	46.89	6354	48.04	4558	48.59
MBE	Strategy change (low to high)	527	9.28	529	9.34	376	9.63	261	10.00	179	9.72
	Control group	10308	8.86	11477	8.52	8791	8.24	6373	8.06	4570	7.78
PTN	Strategy change (high to low)	440	43.56	436	42.88	317	37.99	240	38.21	176	42.98
	Control group	10372	45.45	11538	47.05	8824	47.58	6373	48.86	4560	49.41
MBE	Strategy change (high to low)	440	8.23	441	7.87	320	7.97	240	8.16	178	8.64
	Control group	10395	8.90	11565	8.58	8847	8.26	6394	8.08	4571	7.78

We furthermore look at changes in productivity and profitability for changes towards a low commitment HR strategy. As expected, we observe that the productivity decreases with the change of the strategy and in the following years, but seems to stabilize itself in the second and third year after the switch. For the profitability, we can observe a similar pattern. After a decrease in the year of the strategy switch, profitability begins to rise and obtains a higher value than the control group in the third year after the strategy switch (8.64 to 7.78). This could respond to two possible explanations. First, the profitability rise could be a short term event due to the lowering of the wages. In the long term however, profitability should decrease again. The second explanation would be that the strategy switch is an intended choice of the companies' managers because a low commitment strategy fits better to the overall company's strategy (e.g. low cost strategy). In this case, the increased profitability would be sustained.

Changes to high or low commitment HR strategies happen across all industries, i.e. we cannot find a bias toward a specific industry.

In sum, the results confirm the second hypothesis, although they show that an increase of the profitability could also be obtained by switching towards a low commitment HR strategy.

4.3 Ownership Structure and High Commitment HR

As a last step, we will analyze the relationship between the ownership structure and the choice of the HR strategy. We run logit estimations with the high commitment HR strategy dummy as

dependent variable. As independent variables we include all variables explaining the ownership structure: Family control, corporate, foreign and public blockholder, the fact of belonging to a company group and the listing on the stock exchange. As control variables we include again the size and the age of the company, competition, human capital endowment and industry and legal form dummies.

Table 14: HR strategy and ownership structure

Model	(1)	(2)
Dependent variable	HIGHHRM	HIGHHRM-REDUCED
Estimator	Logit	Logit
FAMILI	-0.646***	-0.856***
	(0.000)	(0.000)
BLOCK	0.305**	0.950***
	(0.046)	(0.000)
FORBLOCK	0.709***	1.106***
	(0.000)	(0.000)
PUBBLOCK	-0.791	-0.194
	(0.238)	(0.857)
PERSOC	0.521***	0.590***
	(0.001)	(0.008)
COTBOL	0.180	0.894*
	(0.587)	(0.095)
SIZE	0.955***	1.629***
	(0.000)	(0.000)
AGE	0.030***	0.044***
	(0.000)	(0.000)
COMPETITION	0.023	0.043
	(0.682)	(0.563)
PIL	0.009	-0.014
	(0.267)	(0.208)
PTIM	-0.009	-0.003
	(0.119)	(0.745)
Industry dummies	Included	Included
Legal form dummies	Included	Included
Constant	-8.256***	-12.412***
	(0.000)	(0.000)
N	9331	7023
Pseudo - R^2	0.430	0.646

Notes:
p-value in brackets
*** $p < 0.01$
** $p < 0.05$
* $p < 0.10$

In the models (1) and (2), we can observe for family owned firms a statistically significant negative effect on the choice of a high commitment HR strategy. This means that these firms are more likely to follow a low commitment strategy, which confirms our third hypothesis.

We find in both models the presence of a corporate or foreign blockholder to be statistically significant positively related to the choice of a high commitment HR strategy. One explanation

for this finding would be that experienced corporate or foreign investors exert pressure on the management to follow up-to-date management and HR-practices, including high commitment HRM. Therefore, we can confirm our fourth hypothesis that corporate blockholders give companies access to new technologies like high commitment HR practices. However, the same is not true for the presence of the state as a blockholder. For them, we can observe a consistently negative sign, which may occur because the incentives for publicly controlled firms to incorporate new technologies and practices are lower. However, the variable is not statistically significant, which may be due to the fact that only very few firms (1%) have the state as a public blockholder.

Table 15: HR strategy and ownership structure

Model	(3)	(4)	(5)	(6)
Dependent variable	HIGHHRM (t+1)	HIGHHRM-REDUCED (t+1)	HIGHHRM (t+2)	HIGHHRM-REDUCED (t+2)
Estimator	Logit	Logit	Logit	Logit
FAMILI	-0.792***	-1.054***	-0.778***	-1.023***
	(0.000)	(0.000)	(0.000)	(0.000)
BLOCK	0.385**	0.764***	0.749***	0.827***
	(0.016)	(0.001)	(0.000)	(0.001)
FORBLOCK	0.823***	1.124***	0.371**	0.717***
	(0.000)	(0.000)	(0.038)	(0.008)
PUBBLOCK	-1.347**	-0.252	-1.505***	-0.534
	(0.024)	(0.805)	(0.009)	(0.585)
PERSOC	0.311*	0.626***	0.312*	0.714***
	(0.062)	(0.0069	(0.084)	(0.005)
COTBOL	0.284	0.970*	0.357	0.483
	(0.450)	(0.096)	(0.442)	(0.483)
SIZE	1.112***	1.736***	1.135***	1.797***
	(0.000)	(0.000)	(0.000)	(0.000)
AGE	0.025***	0.038***	0.020***	0.033***
	(0.000)	(0.000)	(0.000)	(0.000)
COMPETITION	0.068	0.055	0.064	0.049
	(0.241)	(0.472)	(0.298)	(0.545)
PIL	0.013	-0.006	0.024**	0.020
	(0.143)	(0.607)	(0.020)	(0.145)
PTIM	0.004	0.003	0.020***	0.021**
	(0.537)	(0.698)	(0.004)	(0.030)
Industry dummies	Included	Included	Included	Included
Legal form dummies	Included	Included	Included	Included
Constant	-8.216***	-12.122***	-12.122***	-11.976***
	(0.000)	(0.000)	(0.000)	(0.000)
N	8708	6563	9342	6049
Pseudo - R^2	0.438	0.653	0.308	0.661

Notes:
p-value in brackets
*** $p < 0.01$
** $p < 0.05$
* $p < 0.10$

If the firm is member of a company group (PERSOC), we can find a strong statistically significant positive influence on the choice of a high commitment strategy. The explanation

may be similar to that of corporate and foreign blockholders. Company groups, which tend to be big and experienced, may pressure management towards high commitment HRM.

Being listed on the stock exchange has a positive effect and is statistically significant in the model (2). Firms listed in the stock exchange may generally face more pressures from shareholders to optimize the operations and their strategy. Since, as shown before, the high commitment HR strategy is related with higher productivity and profitability, investors may exert pressure to follow a high commitment HR strategy.

Regarding the control variables, we find that company size and company age have a statistically significant positive effect on the use of a high commitment HR strategy. Bigger and older firms may have more resources and experience to employ a high commitment HR strategy, which, in the long run, could be beneficial to the firm.

To test the robustness of the models, we repeat the analysis with the high commitment HR strategy as lagged variables (one or two years). The results are presented in table 15 and are very similar and consistent, which proofs the robustness of our model. Interestingly, in the long term, the human capital of the firms is related with a high commitment HR strategy, as shown in the models (5) and (6). High fractions of highly qualified people could induce firms to follow a high commitment HR strategy in the future.

Table 16: Family control and blockholders

	FAMILI=0				FAMILI=1			
	BLOCK=0 FBLOCK=0	BLOCK=1 FBLOCK=0	BLOCK=0 FBLOCK=1	BLOCK=1 FBLOCK=1	BLOCK=0 FBLOCK=0	BLOCK=1 FBLOCK=0	BLOCK=0 FBLOCK=1	BLOCK=1 FBLOCK=1
N	4533	1543	125	1893	3223	798	27	202
PTN	35.99	58.77	77.18	70.21	38.24	57.66	57.39	68.19
MBE	8.56	9.31	9.91	9.87	9.29	10.62	9.67	10.33
HIGHHRM	0.09	0.35	0.62	0.56	0.09	0.24	0.39	0.30

In order to analyze the effect of family control with more detail, we first conduct an analysis of means for the productivity, profitability and the probability of following a high commitment HR strategy, depending on family control and having a corporate or foreign blockholdes. The results are shown in table 16. Of special interest is the right hand side. We can observe that both a corporate blockholder and a foreign blockholder increase on average the productivity, the profitability and the probability of following a high commitment HR strategy, when the firm is controlled by a family group.

To investigate this effect in more detail, we conduct more logit regressions, which are presented in table 17. First, in the models (7) and (8), we analyze the combination of family ownership and the presence of a corporate blockholder. The first dummy variable is enabled for firms with family control and a foreign blockholder, while the second dummy variable shows firms with

Table 17: HR strategy and family control

Model	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variable	HIGHHRM	HIGHHRM-REDUCED	HIGHHRM	HIGHHRM-REDUCED	HIGHHRM	HIGHHRM-REDUCED
Estimator	Logit	Logit	Logit	Logit	Logit	Logit
FAMILI – with corporate blockholder	-0.176	0.072				
	(0.426)	(0.824)				
FAMILI – without corporate blockholder	-0.370*	-0.409*				
	(0.066)	(0.099)				
FAMILI – with Foreign Blockholder			-0.259	0.076		
			(0.569)	(0.907)		
FAMILI – without Foreign Blockholder			-0.729***	-0.929***		
			(0.000)	(0.000)		
FAMILI – Only ownership					-0.078	0.059
					(0.707)	(0.827)
FAMILI – Ownersh. + Mngmt.					-0.430**	-0.418*
					(0.035)	(0.081)
BLOCK			0.969***	2.160***	0.751***	1.712***
			(0.000)	(0.000)	(0.000)	(0.000)
FORBLOCK	1.585***	2.698***			1.384***	2.209***
	(0.000)	(0.000)			(0.000)	(0.000)
PUBBLOCK	-0.422	1.172	-0.572	0.425	-0.482	0.875
	(0.497)	(0.251)	(0.400)	(0.694)	(0.434)	(0.386)
PERSOC	1.819***	3.085***	1.665***	2.613***	1.477***	2.299***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
COTBOL	0.953***	2.488***	1.001***	2.650***	1.049***	2.813***
	(0.005)	(0.000)	(0.006)	(0.000)	(0.002)	(0.000)
SIZE	1.009***	1.807***	1.090***	1.999***	0.993***	1.763***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGE	0.032***	0.051***	0.034***	0.051***	0.032***	0.051***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
COMPETITION	-0.108**	-0.213***	-0.099*	-0.195**	-0.100*	-0.189**
	(0.047)	(0.003)	(0.092)	(0.014)	(0.067)	(0.010)
PIL	0.021*	0.013	0.024*	0.012	0.020*	0.009
	(0.088)	(0.243)	(0.056)	(0.319)	(0.054)	(0.419)
PTIM	-0.012*	-0.003	-0.012*	-0.001	-0.012*	-0.003
	(0.068)	(0.706)	(0.086)	(0.896)	(0.074)	(0.743)
Industry dummies	Included	Included	Included	Included	Included	Included
Legal form dummies	Included	Included	Included	Included	Included	Included
Constant	-4.481***	-4.871***	-3.936***	-4.242***	-4.595***	-5.112***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	11109	8381	9381	7058	11084	8357
Pseudo – R^2	0.382	0.569	0.387	0.584	0.384	0.576

Notes:
p-value in brackets
*** p < 0.01
** p < 0.05
* p < 0.10

family control without a foreign blockholder. We can observe that only the coefficient for family firms without a corporate blockholder is significantly negative. If the family firm has a corporate blockholder, the negative effect disappears. The same effect can be observed for the presence of a foreign blockholder in the models (9) and (10). The results suggest that corporate

and foreign blockholders may help family firms to incorporate new technologies and strategies and thus mitigate the negative effect of family control.

Next, in the models (11) and (12) we have separated the family firms again in two groups. In the first group are firms that are owned by a family but employ a professional management team without involvement of family members. In the second group we find firms that are family owned *and* have family members in the management. Our results suggest that family ownership alone is not negatively related to the choice of a high commitment HR strategy. Only if ownership is combined with family members in management, we will observe a statistically significant negative effect on the choice of a high commitment HR strategy.

Again, corporate and foreign blockholders, the belonging to a company group, and the listing on the stock exchange have a positive effect on the choice of a high commitment HR strategy. Regarding competition, we can now observe a negative coefficient, i.e. the higher the competition, the lower the probability of following a high commitment HR strategy. Two explications may apply for this. First, in high competition industries, the cost pressures may be so high that a high commitment HR strategy is not feasible. The second explanation could be that firms with a high commitment HR strategy have the capability to diversify themselves and thus lower the levels of competition.

5. Conclusions

This study provides a further understanding of the relationship between ownership structure and HR strategy. Using Spanish panel data, we are able to analyze the HR strategies the firms are following, the relation between the HR strategy and performance and other firm-specific characteristics, and the effects of various ownership structures on the choice of following a high commitment HR strategy. Analysis is done using linear and logit regressions for panel data.

Our first results show that two stable equilibria for HR strategies exist, a low commitment HR strategy, with firms supplying very low training or none at all and paying wages below the industry average, and a high commitment HR strategy, with firms paying premium wages above the industry standard and high spendings on training. A third group of firms is situated in a transition state, which is unstable and its members are pursuing either a high- or low commitment HR strategy.

Secondly, we showed that there is a clear relation between the HR strategy and performance. Firms, following a high commitment HR strategy have, on average, a higher productivity and profitability than firms with a low commitment HR strategy and firms that are in a transition state. Furthermore, we find high commitment firms to export more frequently. When firms change their HR strategy towards high commitment, both the productivity and profitability rise

on average in the following years. However, profitability can also rise also when the firm switches towards a low commitment HR strategy, which may fit more to the firm's overall strategy. In summary, the results support the theory of Guest et al. (2000) and the findings of most studies dealing with this topic.

Thirdly, our results indicate that there is a strong relation between the ownership structure and the choice of a HR strategy. Firms, controlled by a family group, are less likely to follow a high commitment HR strategy, which supports our hypothesis that family ownership may lead to limited organizational capability and suboptimal HR decisions. However, when we separate family control in family ownership and family management, we observe that only family management is related negatively to the use of a high commitment HR strategy but not the family ownership alone. Furthermore, the negative effect can be mitigated by the corporate or foreign blockholders, who may put pressure on the family firm.

Corporate and foreign blockholders, taken alone, are positively related to the choice of a high commitment HR strategy. Again, our hypothesis is supported that corporate and foreign blockholders facilitate firms the access to new technologies and strategies. In some cases, they may also exert pressure on management to follow a high commitment HR strategy, since in the long run, it promises higher productivity and profitability. The same argument holds for firms that belong to a company group, which we also confirm with our data.

The same positive relation cannot be found for public blockholders. The companies, in which the state holds a stake, are less likely to follow a high commitment HR strategy, although the effect is not significant in all regressions. This, again, confirms our hypothesis that public blockholders do not follow a profit maximization strategy and do therefore not consider a high commitment HR policy.

While a high commitment strategy is strongly positively related with company size and age, we find a negative relation with the degree of competition. This could be due to cost pressures in highly competitive markets or due to diversification capabilities of high commitment HR strategy firms.

In sum, our results suggest that it may be beneficial for many firms to follow a high commitment HR strategy. However, for some firms it may also be advantageous following a low commitment strategy if it corresponds with its overall strategy. It appears that in this aspect, family firms have a competitive disadvantage and they should open themselves to this form of HR strategy. Since family firms with corporate or foreign blockholders do not show a negative effect on high commitment HR strategy choice, a corporate or foreign blockholder may help to put pressure on management for a strategy change.

The paper is the first to analyze the relation between ownership structure and Human Resource strategy in Spain and offers substantial new insights. As argued by Deakin & Rebérioux (2007); Perraudin et al. (2008), firms follow either a “high road” or “low road” HRM approach, corresponding to our high commitment and low commitment definitions. A third transition state is unstable. We also find that listed companies are more likely to follow a high commitment HR strategy, accordantly to Deakin & Rebérioux (2007)’s result of French companies.

We show that in many cases a high commitment HR strategy is beneficial. It does not only have advantages for the firms because of the resulting productivity and profitability, but also to the employees, because they will receive higher compensation and more training than in firms with a low commitment HR strategy. Additionally, investors should focus more on high commitment firms, since they promise a higher return on investment.

As common in the literature using ownership structure measures, we might encounter problems of endogeneity, i.e. ownership structure may be the result of strategic and other variables of the firms. More sophisticated econometric measures like the differences-in-differences approach may mitigate these problems.

Future research should try to include other Corporate Governance measures, such as ownership concentration, board composition and management characteristics and analyze their relation to the choice of a high commitment HR strategy. Furthermore, other measures of a high commitment HR strategy, like performance related pay, cultural aspects and job security could be used. Finally, since our data were limited to Spain, analysis should be repeated with other data, especially from Anglo-Saxon countries.

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