The stock market and human resource management: Evidence from a survey of French establishments

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Résumé. Cet article étudie l'influence de la structure de propriété des entreprises (cotation et identité des actionnaires) sur la gestion de l'emploi. Nous utilisons l'enquête REPONSE 2004-2005, fondée sur un échantillon de 2930 établissements de 20 salariés et plus, représentatif du secteur marchand français. L'analyse économétrique confirme l'importance de la propriété comme déterminant de la gestion de l'emploi, que ce soit en termes de formes temporaires de mobilisation du travail (recours à l'intérim, aux CDD et à la sous-traitance), de politique salariale (niveau des rémunérations et usage de primes), de variation d'effectifs ou de formation.

Abstract. This article examines the influence of equity ownership structure on human resource management practices. The empirical analysis uses the 2004-2005 Workplace Industrial Relations Survey (REPONSE survey), based on a sample of 2930 establishments with 20 employees or more, representative of the French private sector. Econometric analysis confirms the importance of equity ownership as a determinant of human resource management practices, considering temporary work arrangements (agency work, fixed-term contracts and sub-contracting), pay policy (wage levels and use of variable pay), changes in workforce size and training expenditures.

Mots clés: gouvernance d'entreprise, propriété sociale, gestion de l'emploi

Key words: corporate governance, ownership of equity capital, human resource management

Classification JEL: G34, J3, M5

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1 Introduction

In the wake of research carried out in the fields of New Institutional Economics and Law and Economics, corporate governance has been the object of growing attention since the early 1990s. Of primary interests are the determinants and consequences of equity ownership structure, of the legal form of the firm, and of the composition of the board of directors. Numerous studies have examined more precisely the role labour plays, or might play, in corporate governance (Blair, 1995; Blair and Roe, 1999; Roe, 2002; Gourevitch and Shinn, 2005). Blair (1995), for example, highlights the way in which the admission of employee representatives to the board of directors can favour investments in specific human capital, while Roe (2002) considers the rights enjoyed by employees in continental Europe as an explanatory factor of the concentration of equity ownership. More recently, some works have explored the influence of corporate governance, and more specifically of stock markets, on human resource management practices and working conditions (see, for example, Gospel and Pendleton, 2005 or Konzelmann, Conway, Trenberth and Wilkinson, 2006). Corporate governance determines the nature of the relations between the main stakeholders in the firm (shareholders, directors, executives and employees). As such, it plays a decisive part in fixing the firm's objectives and orientating the way it is run. If we consider human resource management to be one of the most important strategic variables for companies, then it is logical to ask what contribution it makes to achieving the objectives set by the governance.

In continental Europe and Japan, changes in stock market law and (to a lesser extent) in corporate law, together with the growing liquidity of financial markets, have increased the sensitivity of managers to the interests of minority shareholders (Fanto, 1998; Cioffi and Cohen, 2000; Aoki, 2007): the influence of stock market over listed companies is getting stronger. This has led some authors to diagnose a convergence between the continental European or Japanese systems of governance and the American or British model (Hansmann and Kraakman, 2001). The question of the consequences of this trend on human resource management then arises (Jackson, 2005).

At present, research into the relation between corporate governance and employment follows three main paths.

The first of these, macro-economic and macro-legal, stresses the institutional complementarities that are likely to form on a national level between the stock market and the labour market (Hall and Soskice, 2001; Amable, Ernst and Palombarini, 2005; Deakin and Ahlering, 2005; Barker and Rueda, 2007; Black, Gospel and Pendleton, 2007). The key idea is that a financial system that favours liquidity, as in the United States or Great Britain, may limit the possibilities for employee commitment and cooperation within enterprises, but facilitate the reorganisation of activities. Black *et al*. (2007) observe, for example, for OECD countries in the 1990s, the negative influence of stock market activity on employment stability and the centralisation of wage bargaining; on the other hand, they find no effect on employee training, widely studied in this literature. These works stress a first level of interaction between the spheres of finance and employment. But, by definition, they do not allow any sub-national distinctions between firms, according to whether or not they are listed on the stock market or according to the distribution of equity ownership.

The second line of research examines changes in employment in firms that have become sensitized to stock market, through a series of monographs on enterprises. Jackson, Höpner and Kurdelbusch (2005) study human resource management in large listed companies in Germany, which are becoming increasingly concerned with their financial profitability and stock market valuations. Froud, Haslam, Johal and Williams (2000a) and Deakin, Hobbs, Konzelmann and Wilkinson (2006) study British listed companies. These works bring to light a style of human resource

management associated with the requirements of minority shareholders, a style that cannot be found either in non-listed companies or in listed companies that are insulated, because of their shareholding structure, from the influence of the stock market. However, these monographic studies would be interestingly complemented by statistical or econometric analyses.

The third path of research, micro-econometric, uses data on business enterprises to investigate the consequences of mergers and acquisitions – and therefore of changes affecting equity ownership – on variations in the workforce. This vast literature has been revived by the use of linked employer-employee data (LEED; see Bryson, Forth and Barber, 2006). The results have been very mixed: for example, while Lehto and Böckerman (2006) observe that changes in ownership lead overall to reductions in the workforce, Margolis (2006) notes that the workers laid off have profiles that enable them to find new jobs relatively quickly. Goergen, Brewster and Wood (2006) offer an original contribution: on the basis of enterprise-level data from different countries, they analyse the influence of mergers and acquisitions on the way enterprises adjust their workforce (freezing recruitment, early retirement, lay-offs, etc.). The main limitation of this line of research, for our purpose, is that it only concentrates on one aspect of human resource management (changes in the workforce). Furthermore, these works only look at one particular moment, when the equity ownership is restructured.

Our article differs from and complements the approaches described above, by proposing an econometric study based on establishment-level data, through which it is possible to identify a large set of human resource management practices, beyond workforce adjustments. More precisely, the aim is to study the influence of the equity ownership of enterprises (quotation on the stock market and identity of the main category of shareholders) on different human resource management practices.[1] We use a French linked employer-employee database, the 2004-2005 REPONSE survey, carried out by the DARES (the Research and Statistics Department of the French Ministry of Labour). This survey consisted in three sets of questionnaires (one addressed to a management representative, one to an employee representative and one to a small number of employees) for a sample of nearly 3000 French establishments with 20 or more employees, representative of the private sector (excluding the agricultural sector). The information supplied on human resource management practices, work organisation and industrial relations is very rich. If the data pertain mainly to the establishment level, there is also information available on stock market quotation and the distribution of the company's equity capital. In addition, the survey is merged with an administrative source that provides information about the amount of wages paid in the establishment. We end up with a large quantity of information on the competitive environment of these establishments, the distribution of equity ownership and their human resource management practices for the year 2004.

Our results confirm the importance of ownership as a determinant of human resource management practices. More specifically, we observe that quotation on the stock market, whether or not the capital is primarily owned by institutional investors, is associated with a particular profile of labour management. Relatively favourable working conditions (in terms of wages and training) are given to a small core of employees. Wage bill flexibility is obtained by the extensive use of individual and collective bonuses rather than changes in the number of salaried staff. In parallel, the massive use of commercial contracts (temp agencies and contracting out) constitutes a complementary form

[1] Abe and Hoshi (2007) propose a similar approach for Japan. However, there are two important differences. Firstly, their sample only contains 58 enterprises. Secondly, all these enterprises are listed, only differing in the distribution of their equity ownership. This work cannot, therefore, be used to compare the direct, pure effects of listing on the stock market.

of cost 'flexibilisation' that characterises these establishments. We argue that this profile of human resource management is consistent with the profitability requirements of the stock market.

The article is organised as follows. The second section presents the main characteristics of the French model of corporate governance and examines recent developments in this model, reflecting the rise to power of minority shareholders. The theoretical links between stock market and human resource management are discussed in the third section. The fourth section describes the empirical analysis. The fifth section presents the main results. The sixth section concludes.

2 The dynamic of the French model of governance

When it examines the characteristics of corporate governance models, the comparative literature traditionally contrasts continental Europe with the United States and Great Britain (see, for example, Prowse, 1995; Barca and Becht, 2001). The role played by stock market in corporate control is the main distinctive factor.

In the Anglo-Saxon countries, companies are more frequently listed and the stock markets are more active, in terms of volumes transacted. The prime movers in these markets are institutional investors, especially pension funds and mutual funds, which own about half of the shares listed in the United States, the other half being owned by households. With the addition of insurance companies, the holdings of institutional investors in Great Britain represent more than 70%. Although institutional investors manage large volumes of assets, they diversify their portfolios and only possess a small proportion of shares in any given company: they are minority shareholders. Stock market prices, which in theory capture expectations of dividends and determine the possibilities of making capital gains, are *a priori* the best indicator of the interests of these investors, who are concerned with the liquidity of their assets.

The dispersion of equity ownership resulting from diversification makes direct control of the managers by the stockholders difficult, or even impossible (Berle and Means, 1932). There are, however, a certain number of devices that encourage the managers to behave in line with the interests of the minority shareholders. Some of these devices are of a legal nature. Shareholder activism, consisting in exercising voting rights as systematically as possible in general meetings of shareholders, is common practice among institutional investors in the United States and also, to a lesser extent, in Great Britain (Black, 1998). Likewise, legal actions against managers or directors for the breach of fiduciary duties are frequent in the United States (Hertig and Kanda, 2004). But it is above all those mechanisms that sensitize managers to the stock market price which guarantee the 'prioritization' of shareholders interests in business conduct: in Great Britain, a flexible regime for hostile takeover bids favours stock market discipline (Deakin, Hobbs, Nash and Slinger, 2003), while in the United States, this role is more likely to be played by share option schemes for corporate executives (Hansmann and Kraakman, 2004, p. 67). Taken as a whole, these mechanisms drive managers to adopt a form of management based on the "creation of shareholder value" (Froud, Haslam, Johal and Williams, 2000a and 2000b; Lazonick and O'Sullivan, 2000; O'Sullivan, 2000; Hossfeld and Klee, 2003): in practical terms, this means achieving maximum financial profitability so as to keep a favourable stock market evaluation (see below).

To be efficient, this market control requires the highest possible level of (informational) transparency on the part of companies. The minority shareholders, at a distance, should have access to reliable information about the management of companies, so that their valuations, or decisions to buy or sell, can be as rational as possible. Only on this condition can the stock market price offer pertinent signals on the running of companies. The requirements regarding the disclosure of

information by listed companies in the United States and Great Britain are therefore traditionally high.

This system of control is usually referred to as 'outsider control', because it relies first and foremost on players from outside the company (the minority shareholders). The main characteristic of this model is that it takes the stock market price as a central indicator in the management of listed companies.

In France (and continental Europe as a whole), the importance of institutional investors is lower – notably due to the slighter presence of pension funds. The possession of shares by non-financial companies is relatively substantial. Unlike the typical shareholdings of institutional investors, these are often 'blockholdings'. The concentration of ownership is therefore quite high (La Porta, Lopez de Silanes and Shleifer, 1999; Barca and Becht, 2001)[2]. It tends to protect or insulate listed companies from the stock market. In addition, employees' rights to information and consultation, particularly through works councils, constitute an internal counterweight (Rebérioux, 2002). In Germany, these rights are made even more substantial by the system of co-determination, where employee representatives of certain companies are given seats on the supervisory board (with the same rights as the shareholder representatives). This general pattern of corporate control is referred to as 'insider control', giving significant weight to agents committed to stable relations with the company (blockholders and employees).

This difference in the relative importance attached to stock market valuations within each of the governance systems is not without consequences for the strategic choices and the management of companies. Probably the most direct effect concerns the dividend policies of listed companies: according to La Porta, Lopez de Silanes, Shleifer and Vishny (2000), common law countries (including Great Britain and the United States) have a more generous dividend policy than civil law countries (including France and Germany). This very general result is criticised by Goergen (2007), who nevertheless finds, in a comparison between Great Britain and Germany, that German firms are more likely to cut dividends when their net results fall. These works suggest that the payment of dividends does indeed represent a more strategic, or more sensitive, variable for listed companies that are under direct pressure from the stock market.

However, the typology described above is being overturned: the idea of the convergence of the continental European model of shareholding towards the Anglo-Saxon model is now widely advanced in the comparative literature (see, for example, Hansmann and Kraakman, 2001; Denis and McConnell, 2003). In the French case, it is possible to identify certain developments that undeniably play a part in shifting the insider model of governance towards a more market-based (outsider) one.

The first evidence of this move is the growth in stock market capitalisation, mostly due to an increase in the volume of security transactions. This growth in stock market activity is directly linked to the increasing penetration of these markets by financial investors, not only national but also British and American. Thus, Tirole (2006) estimates that one third of the capital of French listed companies was held by non-residents in 2002, mainly Anglo-Saxon funds looking for international diversification of their portfolios. Thomsen (2004) reports that at the beginning of the 1990s, the proportion of ownership by non-residents was less than 15%. Today, for the largest

[2] Ownership concentration is favoured by legal rules lying in the domain of corporate law. In France, this essentially involves double voting rights (see, for example, Hansmann and Kraakman, 2004, pp. 55-56), voting caps to protect against hostile takeovers (see, for example, Cozian, Viander and Deboissy, 2005, p. 290) and shareholder pacts (see, for example, Cozian, Viander and Deboissy, 2005, p.305).

companies (included in the CAC40), the percentage is commonly above 40%. This increase in the power of minority shareholders in the equity capital of French companies has been accompanied by a decline, but not a collapse, in blockholdings (see Thomsen, 2004, pp. 306-308). Table 1 presents the distribution of ownership of French listed companies in 2004 (date when the REPONSE survey was conducted): considering that the large majority of non-residents are investment funds, we can see that institutional investors, French and foreign, represent by far the most important category of shareholders in listed companies today.

Table 1: Ownership of common stock (as a percentage of outstanding shares) for French listed companies in March 2004

Households	8.6
Non-financial companies	24.6
Other non-financial agents	4.2
Institutional investors	28.1
Non-residents	34.6
Total	100

Source: Banque de France

In parallel, we can observe important changes in financial market law and, to a lesser extent, in corporate law over the last decade, moving towards greater protection for minority shareholders (Fanto, 1998; Cioffi and Cohen, 2000). The information disclosure obligations of listed companies have been markedly strengthened, notably by three texts: the "New Economic Regulation" Act of May 2001, the "Financial Security" Act of August 2003 and the "*Ordonnance*" n°2004-604 of June 2004. These texts were directly inspired by the publication, since the mid-1990s, of a series of corporate governance codes, promoting the interests of minority shareholders.[3]

The calculations made by Batsch (2007) on the 30 industrial groups of the CAC40 also reveal that dividends are on the upswing: between 1999 and 2005, the dividend per share practically doubled on average (multiplied by 1.9). Ginglinger and L'Her (2006) point out that share buybacks, by which some of the cash flow can be transferred to shareholders, have become commonplace, encouraged by a change in the regulation in 1998. The standard use of stock options by French listed companies is another marker of the process of 'financialisation': according to a study by the firm Towers Perrin, published in May 2007, France is the European country in which the proportion of stock options and free shares in executive pay is the highest (50 %, compared with less than 30 % in Great Britain, and more than 65 % in the United States).

The use of data from the last two REPONSE surveys (1997-1998 and 2004-2005) confirms these trends. The first evidence is that of an increase in the number of establishments belonging to companies listed on the stock market[4]: in 2004, 23.9% of establishments belonged to a listed company, compared to 21.9% in 1998. 37.6% of the workforce was employed in a listed company in 2004, compared to 34.2% in 1998. The second evidence is that of the increasing importance of institutional investors (national and foreign) in the equity capital of listed companies. In 2004, these investors were the largest category of shareholders for 28.4% of the establishments belonging to listed companies (thus outstripping all the other categories), against only 17.7% in 1998. The equity

[3] See the Viénot I (1995) and Viénot II (1999) reports, and the Bouton report (2002).

[4] The figures presented in this article are weighted. They relate either to all establishments in the French private sector (excluding agricultural sector) with 20 or more employees (125,200 establishments), or to all the employees in these establishments (9.6 million employees).

ownership structure of non-listed companies remained much more stable, with a predominant proportion owned by families or individuals.

The growing sensitization of the executives of French listed companies to the interests of minority shareholders can hardly be disputed. Even so, we should also note that certain domains escape this movement of convergence, with a strengthening of the characteristics of the continental European model: this is the case for the law codifying hostile takeovers, which, with the transposition of the 13th European Directive, offers some latitude to French companies to protect themselves (Shearman & Sterling LLP, 2006). Likewise, the strengthening of employees' rights to information and consultation represents a factor of divergence in the French model. As a consequence, the diagnosis of a one-dimensional movement of convergence towards Anglo-Saxon standards needs to be qualified (Aglietta and Rebérioux, 2005). The current situation is rather one of coexistence between two rationales, the logic of blockholdings on the one hand, and the logic of the stock market, supported by the increase in power of diversified investment funds on the other.

3 The stock market and human resource management: some hypotheses

As we saw in the introduction, the literature on the varieties of capitalism brings to light the way in which the characteristics of the financial markets can be related to certain practices in the field of human resource management. Thus, a financial system that favours the rapid reallocation of capital (exit strategies for investors) is seen as being complementary to a flexible labour market, with low job protection. Conversely, less liquid financial markets, such as they exist traditionally in the continental European model, promote a certain level of job stability within companies, favourable to the development of specific human capital. If we use the same analytical grid to examine the situation at the corporate level, in a country with a pure "insider" model of governance, we should not find any clear difference in human resource management practices between listed and non-listed companies: the weakness of the control mechanisms associated with the stock market should diminish the differences likely to affect listed and non-listed companies. In other words, being listed on the stock market should not, *per se*, imply a specific style of management. On the other hand, we should expect to observe more pronounced differences in human resource management practices between the two groups of companies as the influence of the stock market gains ground. This is the hypothesis underpinning, for example, the study of Jackson, Höpner and Kurdelbusch (2005), who seek to grasp the specificity of human resource management practices in the large listed companies in Germany. In the French case, and given the developments in corporate governance described in the previous section, we may assume that human resource management practices can be differentiated according to whether or not the company is listed and the extent to which its equity capital is held by financial investors.

It is possible to specify the ways in which stock market pressure is likely to influence the management, organisation and remuneration of labour. *A priori*, the most direct effects of the current changes in corporate governance are of two orders. Firstly, the process of 'financialisation' tends to strengthen the requirements of informational transparency for listed companies. We shall leave this question aside in this article. Secondly, this process strengthens the requirements of financial profitability imposed on listed companies. In a capitalist system, it is clear that every company has to achieve a level of profitability allowing it to cover the cost of capital. Over and above this level, the requirements of profitability will be more or less intense according to the macro-institutional context that underlies the varieties of capitalism (Hall and Soskice, 2001; Amable, 2003; Jackson *et al.*, 2005). More precisely, 'financialisation' accentuates these requirements. Competing to attract household savings, investment funds seek to offer the highest possible profitability (at a given level of risk) to their beneficiaries. This is not without consequence

for the companies in which they own shares. As a result, institutional investors are the bearers of new forms of corporate management, based on the maximisation of "shareholder value"[5].

More precisely, value-based management models, which first appeared in the 1990s[6], are all founded on the same principle: there is "creation of shareholder value" when the (financial) profitability achieved by the company is higher than the profitability expected by the market (the cost of equity capital for the firm). The most widely-used tool of shareholder value creation, Economic Value Added (EVA), expresses this approach most clearly. Presented by its advocates as being closely correlated to the stock market price, this indicator makes it possible to operationalize the requirements imposed by investors. *R* denotes the net result (net operating profit after tax), *k* the cost of capital (or the equilibrium return on equity as calculated by the Capital Asset Pricing Model), *EC* the book value of equity capital and *ROE* (Return On Equity) the financial profitability (the ratio of the net result to equity capital, *R / EC*). We can then write two equivalent expressions of EVA for a firm at time *t*:

$$EVA_t = R_t - k_t \,.EC_t$$
$$= (ROE_t - k_t).EC_t$$

According to this approach, therefore, the wealth really created for shareholders is the value added over and above the profitability expected by the market (*ROE – k*). The market equilibrium return (*k*) is considered as the minimum return, a benchmark, on the basis of which the real creation of value can be appreciated (Batsch 1999). Managers are invited to maximise shareholder value in each financial period, and this should guarantee them a favourable evaluation in the stock market. On the other hand, any "destruction" of shareholder value (financial profitability that is positive but below the cost of capital) runs the risk of provoking a fall in the price of the company's shares. From an operational point of view, as managers have no direct influence over the cost of capital (*k*), the requirement of shareholder value creation ultimately comes down to a requirement for the maximisation of financial profitability.

Accounting analysis can be used to appreciate the different paths open to managers to obtain maximum financial profitability (Froud, Haslam, Johal and Williams, 2000a and 2000b). As with any ratio, there are two possibilities. They can work on the denominator, in other words the capital invested (*EC*): share buybacks, which reduce total equity capital, are used ever more frequently by listed companies (see Ginglinger and L'Her, 2006). They can also work on the numerator, in this case the net result (*R*, the difference between turnover or total income and total costs). It is at this level that human resource management practices can be used as strategic leverage. More precisely, two strategies can be distinguished.

The first strategy could be described as 'defensive' or 'low road'. It consists in minimising labour costs, the primary component in operating costs. In its most direct form, this may be achieved by reducing the workforce, through 'downsizing'. Company restructuring over the last two decades

[5] A conspicuous example of strategic turn by listed companies in reaction to the increasing pressure of stock market is reported by Vitols (2002), with the 'Big Three' German integrated chemical/pharmaceutical companies (Hoechst, Bayer and BASF). Whereas those companies tended in the postwar period to prioritize growth (in particular through diversification) and investment over profitability, the transformation in corporate governance in the mid 1990s led them to focus on stock price and financial profitability. In the case of Hoechst, this involved quite a radical change of business model, with the abandonment of the integrated strategy.

[6] On the diffusion of these models, see for example Cooper, Crowther, Davies and Davis (2000) and Hossfeld and Klee (2003).

has often appeared to be guided by the desire to reduce the proportion of value-added devoted to labour, to satisfy the profitability constraints imposed by the rise to power of market finance[7] (see, for example, Froud *et al.*, 2000a for the British case and O'Sullivan, 2000 for the case of the United States during the 1980s and 1990s). For a given size of the workforce, a low road strategy can also take the form of a restrictive pay policy or the limitation of training expenditures. This hypothesis is envisaged by Black *et al*. (2007), who use macroeconomic data to test the impact of stock market activity on the training effort of firms – without obtaining any significant results.

The second strategy has more of an 'offensive', 'high road' nature. It acknowledges the fact that certain short-term costs can, over the medium to long term, increase total income and so both net result and profitability. The motivation of employees (through pay policy for example) and high expenditures on training can increase productivity and the company's innovation capacity, so maintaining a competitive advantage. Consequently, a strategy of short-term cost minimisation can conflict with a strategy of maximising profitability over a longer-term horizon. The question of the impact of profitability requirements on labour costs thus remains open.

Besides maximising net result, it is also necessary to control its variation. A fall in profits is particularly critical because, even if it is temporary, it may produce a "destruction of value" ($ROE < k$) that will be penalized by the stock market. For this reason, the flexibility of operating costs might be exploited to vary the net result of the company according to need (Colasse 2001; Froud *et al*. 2000b). Labour costs, as the main component of operating cots, are a natural candidate for this purpose. They might be adjusted through the use of flexible forms of employment and flexible pay practices. Thus, Jackson (2005) and Jackson *et al*. (2005) observe the massive use of performance-related pay schemes by German firms pursuing shareholder value-based management strategies.

To sum up, the growing importance of stock market valuation in the strategies of French listed companies is pushing up the requirements of financial profitability. Human resource management practices are likely to be influenced, to the extent that they can contribute directly to meeting these requirements. This analysis presupposes that it is possible to observe, *ceteris paribus*, a significant difference between listed and non-listed companies in their human resource management practices. In other words, we set out to test the hypothesis that quotation, because it endows the valuations of players in the financial market with central importance, is likely to shape human resource management practices. We distinguish practices according to whether they focus on the variability (flexibility) of labour costs or on their overall level (training expenditures and pay levels, for example). In addition, we can put forward the hypothesis that the penetration of capital by institutional investors, whether resident or foreign, heightens profitability requirements and consequently impacts on human resource management. The following section therefore sets out to evaluate the existence of a style of human resource management consistent with the pressure of the stock market, drawing on the data of the 2004-2005 REPONSE survey.

4 Empirical analysis

The REPONSE (Workplace Industrial Relations) Survey constitutes a unique source of information in France from which one can combine relatively complete information about both human resource

[7] We should note, however, that no systematic empirical link has been evinced between a rise in stock market price and a cut in the workforce (see Capelle-Blancard and Couderc, 2006). While recognising that restructuring can be motivated by financial profitability, it is clear, however, that shareholders do not always value downsizing.

management practices and the ownership structure of the company. To obtain information on the pay level, we have drawn information from the DADS (Annual Declarations of Social Data, collected by the National Institute for Statistics and Economic Studies, INSEE), merged with the REPONSE database. The DADS gives us exhaustive, administrative, information on wages.

In the previous section, we put forward the hypothesis that stock market valuation can have significant consequences on human resource management practices. We consider the impact of profitability requirements, firstly on the 'variabilisation' of costs, and secondly on their overall level:

- In relation to the 'variabilisation' of costs, we examine the use of temporary work arrangements and the use of flexible pay systems. By using temporary labour arrangements, through employment contracts (fixed-term contracts) or commercial contracts (temporary agency workers and subcontracting), the company can resort to a workforce without any long-term commitment. It can then change the quantity of labour used over the very short term. Pay policy is another tool of labour cost 'variabilisation'. Beyond the wages, employers have the possibility of implementing, on a selective and reversible basis, individual bonus schemes (linked to attendance or individual performance appraisal for example) or collective bonus schemes (linked to financial performance or sales notably). In sum, the use of temporary work arrangements and of variable pay schemes constitute two key elements of human resource management policy by which the operating costs of the company can be 'variabilised'.
- Three dimensions affecting the level of labour costs are studied: wage levels, training expenditures and workforce stability, the latter with the aim, in particular, of reducing labour turnover costs.

We now present in more detail the variables describing corporate governance and human resource management, our empirical strategy and, more briefly, the control variables introduced in the regressions.

Variable of equity ownership structure

Concerning the structure of equity ownership, the 2004-2005 REPONSE survey contains two questions: one concerning the quotation of the equity capital and the other concerning the nature of the principal category of shareholders (French or foreign institutional investors, French or foreign non-financial companies, families and individuals, employees, State or others). We have chosen to underline the situations where the company is listed, associated with the fact of whether or not its capital is owned primarily by institutional investors[8]. Our variable of governance therefore divides the sample into three categories: establishments belonging to non-listed companies, establishments belonging to listed companies in which institutional investors are not the major shareholders and, finally, establishments belonging to listed companies in which institutional investors are the major shareholders. The distribution of this variable is presented in Table 2. In total, more than 24% of French establishments with 20 or more employees (excluding the agricultural sector and public sector) belong to listed companies, employing 37.6% of the labour force (i.e. about 3,610,000 employees). This variable can be considered as a proxy for the degree of 'financialisation' of the companies. By definition, non-listed companies are not directly subject to the requirements of profitability imposed by market finance; by contrast, listed companies in which institutional investors are the largest category of shareholders are the most directly concerned by the stock-

[8] Companies primarily owned by the State or employees have been excluded from the sample, given their specificities. These situations only concern a tiny minority of companies (less than 3% of the sample in each case).

market rationale of maximising profitability. Listed companies in which financial investors are not the main category of shareholders lie between the two.

Table 2: Ownership of equity capital

	Weighted % of establishments	Number of establishments
Listed and institutional investors as main shareholders	6.1	285
Listed and other main shareholders	18.1	708
Non listed	75.8	1528
Total	100.0	2521

Field: Establishments of 20 employees or more in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

Variables of human resource management

On the basis of the 2004-2005 REPONSE survey, we have differentiated the human resource management practices related to labour cost 'variabilisation', as well as those that impact more directly on the level of labour-related expenditures. Table 3 presents the distribution of these different variables.

Table 3: Variables of human resource management

	Full sample	Listed and institutional investors	Listed and other main stockholders	Non listed
Temporary work arrangements (in % of establishments)				
Intensive use of temporary workers	22.9	31.0	30.3	20.5
Intensive use of fixed- term contracts	27.9	24.2	23.2	29.4
Use of subcontracting	53.7	66.3	61.4	50.9
Individual bonuses (in % of establishments)				
For non-managerial employees	55.2	67.6	62.1	52.6
For managerial employees	64.3	89.2	83.5	57.5
Collective bonuses (in % of establishments)				
For non-managerial employees	49.5	78.8	72.4	41.6
For managerial employees	52.2	75.9	74.2	44.7
Net hourly wages in the establishment				
Average in € (mean value)	11.0	13.0	12.1	10.6
(standard deviation)	(4.3)	(6.4)	(3.8)	(4.0)
Median in € (mean value)	9.7	11.3	10.6	9.3
(standard deviation)	(3.3)	(4.0)	(3.2)	(3.2)
Interdecile ratio D9/D1 (mean value)	2.1	2.1	2.2	2.1
(standard deviation)	(1.4)	(0.8)	(0.9)	(1.6)
Training expenditures (in % of establishments)				
3% and more of the total wage bill	25.8	36.2	37.5	22.5
Changes in workforce size (in % of establishments)				
Increasing	44.3	43.2	40.5	45.3
Decreasing	15.7	18.7	20.4	14.3
Stable	40.0	38.1	39.1	40.4

Note: All statistics are weighted.
Field: Establishments with 20 employees or more in the private sector (excluding agricultural sector).
Source: 2004-2005 REPONSE survey, management representative questionnaire, Dares

Among the flexible work arrangements, we take into account temporary agency workers, fixed-term contracts and subcontracting. In the survey, the use of both temporary workers and fixed-term contracts is given relatively precisely as a percentage of total workforce. These types of contract are quite common in France (nearly 40% of establishments use temporary workers and nearly 60% used fixed-term contracts, according to the 2004-2005 REPONSE survey). For this reason, we did not differentiate simply between the use or non-use of temporary workers and fixed-term contracts, but rather between intensive and non-intensive use. In addition, the utilisation rate of these types of contract varies greatly from one sector to another (as Table A.1 in Appendix illustrates): the value of the third quartile ranges from 0 to 21% for temporary workers or from 0 to 15% for fixed-term contracts. We therefore define the behaviours of intensive use on a sector-by-sector basis: we isolate establishments with rates of use equal to or greater than the third quartile in their sector. In the survey, the question concerning the use of subcontracting is much more direct, in that it distinguishes uniquely between establishments who do or do not use it. We have therefore constructed a binary variable expressing this distinction directly.

The REPONSE survey gives information about the existence of individual and collective bonus schemes for managerial employees on the one hand, and for non-managerial employees on the other. We have used the information in this form so as to bring to light any possible differentiation of strategies of wage 'variabilisation' between the two groups.

The DADS data provides precise information about average and median net hourly wage levels, as well as the interdecile ratio of wages within each establishment (D9/D1)[9] as a measure of wage dispersion. Taking into account the average and median wages enables us to obtain a more complete representation of the level of pay in the establishment.

The REPONSE survey provides data about the level of training expenditures as a percentage of the total wage bill of the establishment. Although the initial variable was subdivided into five classes, we have used the 3% level of expenditures as a measure of high employer commitment to training. This threshold corresponds to the average rate of expenditures in France in 2004 (Idmachiche, 2007).

Lastly, we have exploited the information on variations in the salaried workforce over the three years preceding the survey. The REPONSE survey does not provide figures for workforce variations over previous years, but it does indicate the direction of these variations – stable, increasing or decreasing – according to the management representatives. Using this information, we can test the stability of the workforce, relatively to a decrease or an increase.

A first exploratory analysis of the relations between the variables of governance and human resource management practices highlights the links existing between them (see Table 3). We observe, for example, that the use of individual bonuses for managerial employees is much more frequent in establishments belonging to listed companies than non-listed ones, and this difference is even more pronounced when the primary category of shareholders are institutional investors. Econometric analysis of the effects of equity ownership structure on the different human resource management practices enables us to describe these links more precisely.

[9] The field of employees taken into account to calculate these variables is constituted of employees eligible to be included in the REPONSE survey, i.e. employees (excluding top executives) having worked at least 15 months with the firm.

According to the nature of the explained variables, the estimations are computed either on the basis of linear regressions using Ordinary Least Square method (for the wage levels and dispersion variables), dichotomous logit estimations (for the different forms of work arrangements and pay schemes and for training expenditures) or multinomial logit estimations (for workforce variations). We then estimate three types of equations of the following form:

$$\ln (P_{ij} / 1 - P_{ij}) = a + b\, CG_j + \sum_{k=1}^{K} c_k\, X_{jk} + \varepsilon_j \qquad (1)$$

where P_{ij} is the probability of occurrence of practice $i = \{1,\ldots, 8\}$ for establishment j, CG_j the corporate governance variable (with 'non listed' as the reference category), X_{jk} the set of K controls (for a list see Appendix, table A.2), a, b and (c_1 ;… ; c_K) the estimated coefficients and ε_j the i.i.d. random noise. Practices are the following:

P_{1j} : the probability for establishment j to have a rate of use of temporary workers equal to or greater than the third quartile of the sector

P_{2j} : the probability for establishment j to have a rate of use of fixed-term contracts equal to or greater than the third quartile of the sector

P_{3j} : the probability for establishment j to resort to sub-contracting

P_{4j} : the probability for establishment j to use individual bonus schemes for non-managerial employees

P_{5j} : the probability for establishment j to use individual bonus schemes for managerial employees

P_{6j} : the probability for establishment j to use collective bonus schemes for non-managerial employees

P_{7j} : the probability for establishment j to use collective bonus schemes for managerial employees

P_{8j} : the probability for establishment j to spend more than 3% of the wage bill on training

$$\ln (P_{ij} / P_{3j}) = a_i + b_i\, CG_j + \sum_{k=1}^{K} c_{ik}\, X_{jk} + \varepsilon_j \qquad (2)$$

where P_{ij} is the probability of occurrence of case $i = \{1,2\}$ for establishment j, P_{3j} the probability of occurrence of case 3 (reference category), CG_j the corporate governance variable, X_{jk} the set of K controls, a_i, b_i and (c_{i1} ;… ; c_{iK}) the estimated coefficients for case i and ε_j the i.i.d. random noise. Alternative situations are the following:

P_{1j} : the probability for establishment j to have an increase in workforce size (over the last three years)

P_{2j} : the probability for establishment j to have a decrease in workforce size

P_{3j} : the probability for establishment j to have stability in workforce size (reference category)

$$\ln V_{ij} = a + b\, CG_j + \sum_{k=1}^{K} c_k\, X_{jk} + \varepsilon_j \qquad (3)$$

where j refers to the establishment, CG_j is the corporate governance variable, X_{jk} the set of K controls, a, b and (c_1 ;… ; c_K) the estimated coefficients and ε_j the i.i.d. random noise. V_{ij} , i={1,2,3}, refers to the following:

V_{1j} : the average net hourly wage in establishment j

V_{2j} : the median net hourly wage in establishment j

V_{3j} : the interdecile ratio (D9/D1) of wages in establishment j

Control variables

Control variables concern the structural characteristics of the establishment, the commercial context in which it operates and the socio-demographic characteristics of the workforce.

- For the establishment, we include its sector of activity, its size in number of employees and its age, but also the turnover level of the company it belongs to (as proxy for the size of the firm)[10].
- Following previous research in human resource management (see e.g. Schuler and Jackson, 2005), we take into account the role the context plays in shaping human resources policies and practices. A set of variables then describes the market environment in which the establishment evolves: its market share, the predictability of demand for its products, the fact of being a subcontractor (for at least 10% of its turnover), having recourse to subcontractors, the state of the market over the three years preceding the survey (growth, stable or decline) and the existence or not of an unexpected shock in demand during the last year. We have also chosen to introduce a variable describing the competitive strategy adopted. Indeed, Deakin, Hobbs, Konzelmann and Wilkinson (2006) have shown, on the basis of monographs on British listed companies, that the way in which stock market pressure impacts on human resource management is not uniform, but depends on different mediations, specific to each company, and notably the strategy they adopt on the products market (low price *versus* high quality).
- The characteristics of the workforce are taken into account through the structure of occupational groups (proportion of managers and supervisors; technicians and professionals; clerical workers; frontline workers), the proportion aged under 40 and the proportion of women[11].

This set of variables constitutes a reference common to all the econometric estimations, although it has been modulated where necessary, for example by giving more precise details about the characteristics of the workforce for the wage regressions. The details and distribution of these variables are presented in Table A.2 in the Appendix.

5 Main results

We first present results of econometric regressions on practices related to 'variabilisation' of costs and then related to the level of costs.

'Variabilisation' of costs

The use of each of the three forms of temporary labour mobilisation (agency workers, fixed-term contracts and subcontracting) is estimated separately. Table 4 presents the results of the estimations.

Our estimations bring to light a particularly strong tendency to resort to agency workers or subcontractors among establishments belonging to listed companies, whether or not institutional investors are the primary category of shareholders. On the other hand, those establishments make significantly less use of fixed-term contracts. Establishments subject to stock market pressure therefore tend to use commercial contracts (temp agencies and subcontractors) rather than employment contracts (fixed-term contracts) to meet their temporary manpower needs.

[10] The information about company turnover is drawn from the DADS.
[11] The socio-demographic characteristics of the workforce are drawn from the DADS.

Table 4: Forms of temporary work arrangements (results of logit estimation)

	Intensive use of temporary workers	Intensive use of fixed-term contracts	Use of subcontracting
Ownership of equity capital			
Listed and institutional investors	0,297 *	-0,294 *	0,554 ***
Listed and other main shareholders	0,231 **	-0,273 **	0,266 **
Non listed	ref	ref	ref
Control variables			
Sector			
Agri-food industry	-0,079	-0,292	-0,122
Consumer goods industry	0,694 ***	0,248	1,060 ***
Capital goods and automotive industries	-0,374 *	0,164	1,634 ***
Intermediate goods industry / energy	-0,188	-0,227	1,500 ***
Construction	-0,827 ***	0,010	2,405 ***
Commerce	ref	ref	ref
Transports	-0,552 **	0,024	1,642 ***
Financial and real-estate activities	0,440 *	-0,550 **	0,135
Business services	-0,257	0,153	0,445 ***
Personal and domestic services	-0,476	-0,325	0,242
Education, health, social services	-0,255	-0,702 ***	0,630 ***
Establishment size			
Less than 50 employees	ref	ref	ref
From 50 to 100	0,211	0,134	0,207
From 100 to 200	0,387 **	0,092	0,247 *
From 200 to 500	0,365 **	0,388 **	0,747 ***
500 and more	0,311 *	0,669 ***	0,901 ***
Age of establishment			
Less than 10 years	0,054	-0,054	-0,241
10 to 50 years	ref	ref	ref
More than 50 years	-0,078	-0,138	-0,048
Company turnover in € million			
Less than 5	ref	ref	ref
5 to 10	-0,167	0,059	0,755 ***
10 to 100	0,189	0,082	0,764 ***
More than 100	0,368 *	-0,077	0,802 ***
Competitive strategy			
Price	-0,065	-0,299 *	-0,079
Innovation	-0,071	-0,561 ***	0,371 *
Quality	-0,242	-0,124	0,032
Originality, reputation, diversity	ref	ref	ref
Not applicable	-0,987 **	-0,489	-0,050
Market share			
Less than 50%	ref	ref	ref
More than 50%	0,097	-0,083	-0,403 ***
Not applicable	-0,066	-0,121	0,042
State of the market			
Growing	0,276 **	0,213 *	-0,050
Stable	ref	ref	ref
Declining	-0,346 **	-0,430 ***	0,074
Difficulty in predicting demand	0,178 *	0,010	0,003
Unusual variation in demand	-0,017	0,061	0,052
Subcontractor	0,246 *	0,150	0,681 ***
Prime contractor	0,538 ***	0,048	
Proportion of women			
Less than 15%	0,054	-0,306 **	0,290 *
From 15% to 60%	ref	ref	ref
More than 60%	-0,224 *	0,642 ***	-0,218 *
Proportion of employees aged under 40			
Less than 40%	-0,342 ***	-0,592 ***	-0,119
From 40 to 70%	ref	ref	ref
More than 70%	0,027	0,496 ***	-0,171
Proportion of managers & superv, technicians & professionals			
Less than 15%	ref	ref	ref
From 15% to 30%	0,387 ***	-0,551 ***	0,395 ***
From 30 to 50%	0,385 **	-0,829 ***	0,649 ***
More than 50%	0,100	-0,866 ***	0,453 ***
Constant	-1,791 ***	-0,438	-1,702 ***
% of concordant pairs	69	70,1	78,6
Number of observations isolated	744	709	1601
Number of observations used	2472	2483	2521

Note: *, **, *** indicate that the coefficient is significant to the 10%, 5%, 1% level respectively
Field: establishments of 20 and more employees in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

Alongside the recourse to employment flexibility, we also investigate the use of variable pay practices through the use of individual and collective bonus schemes. Four models are estimated so as to differentiate between the determinants of the implementation of individual or collective bonus schemes, granted to managerial employees or non-managerial employees (Table 5).

Equity ownership structure has a very significant influence on the distribution of nearly all forms of bonus. Being listed on the stock market, whatever the nature of the primary shareholders, distinctly increases the probability of using individual bonus schemes for managerial employees and collective bonus schemes for all the employees. We therefore observe a practice, linked to the stock market, of intensive pay 'variabilisation' – a similar result to that obtained by Jackson *et al*. (2005) for Germany.

In sum, establishments belonging to companies listed on the stock market, whether or not institutional investors are the largest category of shareholders, make particularly frequent use of temporary workers, subcontractors and bonus schemes. These three tools of human resource management enable the company to 'variabilise' its costs by modulating both the volume of labour employed (*via* temporary workers and subcontractors) and the cost of the labour (*via* bonus schemes).

Level of costs

The influence of the equity ownership structure on wage levels is estimated through three variables: the average wage in the establishment, the median wage and an indicator of wage dispersion, the interdecile ratio. The results of these estimations are presented in Table 6.

The ownership structure of the company has a very significant effect on wage levels, both average and median: they are higher in establishments belonging to listed companies, and all the more so when the main category of shareholders consists in institutional investors. Wages do not, therefore, follow a rationale of cost minimisation within establishments belonging to listed companies. Once again, this result echoes that of Jackson *et al*. (2005) for German firms: although they observe that the pressure exerted by financial markets leads companies to reduce the workforce, they also show that the wages paid to the remaining employees tend to rise.

Concerning wage dispersion, the influence of equity ownership structure is less pronounced than it is on wage levels. We do, however, observe that being listed on the stock market and having institutional investors as the main type of shareholder is linked to a lower dispersion of wages (the level of significance is only 10%). The relatively high wage levels in these establishments are therefore associated with fairly small wage dispersion.

Table 5: Individual and collective bonus schemes of establishments (results of logit estimation)

	Individual bonuses		Collective bonuses	
	For non-managerial employees	For managerial employees	For non-managerial employees	For managerial employees
Ownership of equity capital				
Listed and institutional investors	0,171	0,874 ***	0,567 ***	0,598 ***
Listed and other main shareholders	-0,107	0,631 ***	0,558 ***	0,594 ***
Non listed	ref	ref	ref	ref
Control variables				
Sector				
Agri-food industry	-1,016 ***	-0,492 *	0,009	0,081
Consumer goods industry	-0,446 **	-0,727 ***	-0,459 *	-0,907 ***
Capital goods and automotive industries	-1,115 ***	-0,842 ***	-0,604 ***	-0,783 ***
Intermediate goods industry / energy	-0,620 ***	-0,531 **	-0,378 *	-0,639 ***
Construction	0,427 *	0,116	-0,688 ***	-0,799 ***
Commerce	ref	ref	ref	ref
Transports	-0,624 ***	-0,045	-0,635 **	-0,972 ***
Financial and real-estate activities	0,202	-0,644 **	-0,114	-0,517 *
Business services	-0,028	-0,026	-0,607 ***	-0,502 ***
Personal and domestic services	-0,279	-0,586 **	-0,785 ***	-0,875 ***
Education, health, social services	-2,149 ***	-2,454 ***	-1,891 ***	-1,983 ***
Establishment size				
Less than 50 employees	ref	ref	ref	ref
From 50 to 100	-0,116	0,058	0,585 ***	0,479 ***
From 100 to 200	-0,166	0,202	0,777 ***	0,573 ***
From 200 to 500	-0,339 **	0,451 **	1,091 ***	1,041 ***
500 and more	-0,095	0,424 **	1,019 ***	1,073 ***
Age of establishment				
Less than 10 years	0,340 **	0,280	-0,317 **	-0,156
10 to 50 years	ref	ref	ref	ref
More than 50 years	0,046	0,046	-0,048	-0,093
Company turnover in € million				
Less than 5	ref	ref	ref	ref
5 to 10	0,382 **	0,040	0,390 **	0,349 *
10 to 100	0,533 ***	0,615 ***	0,477 **	0,490 **
More than 100	0,430 **	0,827 ***	1,000 ***	0,995 ***
Competitive strategy				
Price	0,056	-0,064	0,094	-0,263
Innovation	0,007	-0,122	0,352 *	-0,011
Quality	0,029	-0,053	0,363 **	0,095
Originality, reputation, diversity	ref	ref	ref	ref
Not applicable	-0,131	-0,468	-0,130	-0,419
Market share				
Less than 50%	ref	ref	ref	ref
More than 50%	-0,223 *	-0,334 **	-0,017	-0,089
Not applicable	0,045	-0,185	-0,204 *	-0,441 ***
State of the market				
Growing	0,258 **	0,322 **	0,395 ***	0,560 ***
Stable	ref	ref	ref	ref
Declining	0,092	-0,091	-0,440 ***	-0,317 **
Difficulty in predicting demand	-0,260 **	-0,171	-0,197 *	-0,413 ***
Unusual variation in demand	0,082	0,069	-0,210 **	-0,131
Subcontractor	-0,053	-0,138	-0,323 **	-0,496 ***
Prime contractor	0,199 *	0,165	0,284 **	0,323 ***
Proportion of women				
Less than 15%	-0,017	-0,373 **	0,030	-0,139
From 15% to 60%	ref	ref	ref	ref
More than 60%	-0,086	-0,125	-0,096	-0,116
Proportion of employees aged under 40				
Less than 40%	-0,249 **	-0,136	-0,274 **	-0,304 **
From 40 to 70%	ref	ref	ref	ref
More than 70%	0,135	0,253	0,377 ***	0,220
Proportion of managers & superv, technicians & professionals				
Less than 15%	ref	ref	ref	ref
From 15% to 30%	-0,013	0,271 *	0,142	0,092
From 30 to 50%	0,257 *	0,571 ***	0,125	0,168
More than 50%	0,128	0,616 ***	-0,019	-0,050
Constant	0,126	0,252	-0,586 *	0,091
% of concordant pairs	70	77,4	77,9	78,9
Number of observations isolated	1354	1680	1589	1518
Number of observations used	2508	2327	2509	2330

Note: *, **, *** indicate that the coefficient is significant to the 10%, 5%, 1% level respectively
Field: establishments of 20 and more employees in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

Table 6: Hourly wages levels and dispersion within establishment (results of OLS estimation)

	Average net hourly wage (in log)	Median net hourly wage (in log)	Interdecile ratio of wages (in log)
Ownership of equity capital			
Listed and institutional investors	0,038 ***	0,043 ***	-0,034 *
Listed and other main shareholders	0,022 **	0,019 **	-0,015
Non listed	ref	ref	ref
Control variables			
Sector			
Agri-food industry	0,144 ***	0,148 ***	0,011
Consumer goods industry	0,114 ***	0,120 ***	-0,014
Capital goods and automotive industries	0,052 ***	0,072 ***	-0,050 **
Intermediate goods industry / energy	0,122 ***	0,129 ***	-0,007
Construction	0,038 *	0,047 **	-0,026
Commerce	ref	ref	ref
Transports	0,085 ***	0,125 ***	-0,108 ***
Financial and real-estate activities	0,078 ***	0,072 ***	0,042
Business services	0,006	0,022	-0,086 ***
Personal and domestic services	-0,039 *	-0,036 *	-0,113 ***
Education, health, social services	0,057 **	0,041 **	0,054 *
Establishment size			
Less than 50 employees	ref	ref	ref
From 50 to 100	-0,026 *	-0,016	-0,032 *
From 100 to 200	-0,034 **	-0,020 *	-0,049 ***
From 200 to 500	-0,010	0,017	-0,074 ***
500 and more	0,032 **	0,053 ***	-0,064 ***
Age of establishment			
Less than 10 years	0,004	-0,001	0,012
10 to 50 years	ref	ref	ref
More than 50 years	0,027 ***	0,020 **	0,029 **
Company turnover in € million			
Less than 5	ref	ref	ref
5 to 10	0,023	0,006	0,019
10 to 100	0,065 ***	0,022	0,080 ***
More than 100	0,063 ***	0,048 ***	0,028
Competitive strategy			
Price	-0,020	-0,008	-0,046 **
Innovation	0,004	-0,004	-0,016
Quality	0,001	0,004	-0,025
Originality, reputation, diversity	ref	ref	ref
Not applicable	0,026	0,021	-0,030
Market share			
Less than 50%	ref	ref	ref
More than 50%	0,012	0,029 ***	-0,022
Not applicable	0,002	0,004	0,003
State of the market			
Growing	-0,016	-0,011	0,001
Stable	ref	ref	ref
Declining	-0,003	-0,005	0,015
Difficulty in predicting demand	-0,001	-0,012	0,017
Unusual variation in demand	-0,021 **	-0,011	-0,032 ***
Subcontractor	-0,051 ***	-0,051 ***	0,003
Prime contractor	0,022 **	0,019 **	0,029 **
Proportion of women	-0,171 ***	-0,198 ***	-0,033
Proportion of employees aged under 40	-0,001 ***	-0,002 ***	0,001 **
Proportion of front-line workers	-0,079 ***	-0,112 ***	0,017
Proportion of managers and supervisors	1,126 ***	1,003 ***	0,857 ***
Proportion of technicians and professionals	0,393 ***	0,325 ***	0,427 ***
Constant	2,242 ***	2,210 ***	0,487 ***
Adjusted R2	0,66	0,71	0,38
Total number of observations	2521	2521	2521

Note: *, **, *** indicate that the coefficient is significant to the 10%, 5%, 1% level respectively
Field: establishments of 20 and more employees in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

We now turn our attention to two types of indirect labour costs: those related to training expenditures and those related to variations in the workforce. Table 7 presents the results of these estimations.

Taking training expenditures first, the equity capital structure again has a significant influence on the likelihood of spending more than 3% of the wage bill on training. The fact of being listed, whatever the main group of shareholders, is positively linked to high levels of training expenditures.

So far, we have identified a profile of establishments associated with stock market quotation, characterised by relatively high wage levels and important training expenditures. To complete the analysis, we estimate the influence of listing on changes in the size of the establishment's workforce, as a proxy for labour turnover costs.

The results of this estimation (presented in Table 7) show that for a given state of the market, being listed on the stock market has a negative influence on increases in the size of the workforce. But it has no significant effect on reductions. Whether or not the equity capital is owned primarily by institutional investors, growth in staff numbers is less frequent in establishments belonging to listed companies. Such a strategy allows to maintain the workforce around a relatively limited core group of employees. In terms of cost, it makes it possible not only to reduce the number of employees to whom relatively high levels of wages and training expenditures are granted, but also to limit the costs of labour turnover by stabilising the workforce.

Finally, our estimations shape the contours of a particular profile of human resource management associated with quotation on the stock market. This profile is characterised by two main features:

- Firstly, our estimations confirm the hypothesis of strong 'variabilisation' of costs, specifying that this is achieved through wage flexibility and the substantial use of temporary contracts. Among the latter, the use of commercial contracts (temp agency or sub-contractors) is favoured to the detriment of employment contracts (fixed-term contracts).
- Secondly, our estimations show that listed companies adopt an offensive (high road) rather than a defensive strategy for labour costs. Wage levels and training expenditures are relatively high. However, analysis of their practices in terms of workforce stability (marked by a certain reluctance to recruit) and their considerable use of external forms of temporary work arrangements show that this commitment to human resources is concentrated on a relatively limited number of employees. The preference of listed companies for commercial rather than employment contracts finds here a plausible explanation: this strategy allows further isolation of the core of long term employees.

Table 7: Training expenditures and changes in workforce size
(results of binomial and multinomial logit estimation)

	Training expenditures	Changes in workforce size	
	3% or more of the total wage bill	Increasing / stable	Decreasing / stable
Ownership of equity capital			
Listed and institutional investors	0,341 **	-0,313 *	0,080
Listed and other main shareholders	0,341 ***	-0,243 *	-0,042
Non listed	ref	ref	ref
Control variables			
Sector			
Agri-food industry	0,259	0,551 *	0,672 **
Consumer goods industry	0,478 **	0,115	0,427
Capital goods and automotive industries	0,439 **	0,220	0,272
Intermediate goods industry / energy	0,459 **	0,190	0,875 ***
Construction	0,332	0,650 **	0,158
Commerce	ref	ref	ref
Transports	0,327	0,193	-0,506
Financial and real-estate activities	0,752 ***	0,665 **	0,399
Business services	0,182	0,196	0,208
Personal and domestic services	-0,320	-0,401	-0,735 *
Education, health, social services	-0,445	0,582 **	-0,519
Establishment size			
Less than 50 employees	ref	ref	ref
From 50 to 100	0,082	0,243	0,197
From 100 to 200	0,246	0,347 **	0,825 ***
From 200 to 500	0,353 *	0,141	0,960 ***
500 and more	0,787 ***	0,420 **	1,336 ***
Age of establishment			
Less than 10 years	0,058	0,171	0,002
10 to 50 years	ref	ref	ref
More than 50 years	0,058	0,126	0,301 **
Company turnover in € million			
Less than 5	ref	ref	ref
5 to 10	-0,387 *	0,434 **	0,224
10 to 100	-0,379 *	0,344 *	0,125
More than 100	0,077	0,431 *	0,374
Competitive strategy			
Price	-0,396 **	-0,378 *	0,086
Innovation	0,095	-0,026	-0,123
Quality	-0,021	-0,178	-0,325 *
Originality, reputation, diversity	ref	ref	ref
Not applicable	-0,095	-0,364	-0,214
Market share			
Less than 50%	ref	ref	ref
More than 50%	0,208	0,068	-0,141
Not applicable	-0,099	-0,154	-0,177
State of the market			
Growing	0,265 **	1,659 ***	-0,081
Stable	ref	ref	ref
Declining	-0,253	0,039	1,853 ***
Difficulty in predicting demand	-0,198 *	-0,312 ***	0,288 *
Unusual variation in demand	0,067	0,282 **	0,251 *
Subcontractor	0,062	0,110	0,052
Prime contractor	-0,087	0,007	0,140
Proportion of women			
Less than 15%	0,228 *	-0,187	-0,061
From 15% to 60%	ref	ref	ref
More than 60%	-0,230	0,174	0,122
Proportion of employees aged under 40			
Less than 40%	0,050	-0,759 ***	0,278 *
From 40 to 70%	ref	ref	ref
More than 70%	0,075	0,498 ***	-0,062
Proportion of managers & superv, technicians & professionals			
Less than 15%	ref	ref	ref
From 15% to 30%	0,338 **	-0,344 **	0,221
From 30 to 50%	0,828 ***	-0,116	0,151
More than 50%	1,280 ***	-0,288 *	0,371 *
Constant	-1,746 ***	-1,054 ***	-2,510 ***
% of concordant pairs	74,9		
Number of observations isolated	857	1063	628
Number of observations used	2362	2518	

Note: *, **, *** indicate that the coefficient is significant to the 10%, 5%, 1% level respectively
Field: establishments of 20 and more employees in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

These econometric results, based on cross-sectional data, echo the conclusions reached by Jackson, Höpner and Kurdelbusch (2005). Their analysis synthesises a collection of studies, mainly monographs, recording the changes in human resource management practices in German listed companies subject to increasing stock market pressure[12]. They observe a tendency to reduce the number of salaried staff, to fall back on a stable core of employees, most often without mass lay-offs (using voluntary departure, early retirement, etc.). Within the company, average wage levels tend to rise, while the use of individual and collective bonus schemes is becoming widespread. While the French and German financial systems are undergoing relatively comparable transformations, the human resource management practices associated with shareholder value in Germany appear quite similar to the practices we have observed in France.

6 Conclusion

This work has enabled us to explore the way the profitability requirements imposed by the stock market impact on human resource management. It should be noted that our econometric analyses bring to light a relatively homogeneous effect of stock market listing, independent of the nature of the shareholders: the predominance of institutional investors in the equity capital does not change the results, though it sometimes heightens their significance. In a way, this result suggests that if the shareholder-value approach was primarily carried by institutional investors during the 1990s, it has now penetrated all companies listed on the stock market.

Financial return requirements result in human resource management practices focused on a limited core of employees who enjoy relatively favourable working conditions, in terms of wages and training. However, these employees are not entirely shielded from the business cycle, because of the very pronounced use of variable and reversible forms of pay. These characteristics suggest that listed companies have taken a “high road” to profitability, based not so much on the minimisation of costs as on the enhancement of human capital coupled with a strong incentive policy.

The very marked use by these establishments of commercial contracts (temp agencies and subcontractors) to adapt to manpower needs is another characteristic feature, calling for further reflection. On the basis of the 2004-2005 REPONSE survey, Perraudin, Petit, Rebérioux, Thèvenot and Valentin (2007) report the unfavourable working conditions among subcontractors. In parallel, Perraudin, Thèvenot, Tinel and Valentin (2006) show that the profitability of these firms, engaged in a strategy of cost minimisation, is relatively low. Taken together, these results suggest that part of the profitability of listed companies is obtained precisely by means of outsourcing. This interpretation, which requires empirical confirmation, identify listed companies with profit centres, satisfying the requirements of market finance through a dual strategy, combining enhancement of human capital on the one hand with cost minimisation, by means of outsourcing, on the other. In this context, a more profound understanding of the process of ‘financialisation’ can only be achieved by widening the field of analysis beyond the sole category of listed companies. The transformation of financial systems, marked by the rise to power of stock markets, might then be seen to participate in a global reconfiguration of productive systems.

[12] Höpner (2001) constructed an index of sensitivity to shareholder value, including four items: the quality of financial information communicated to shareholders, the importance of communication efforts with minority shareholders, the explicit introduction of EVA-type value-based management tools and the use of complementary payments linked to stock market valuations of the company (e.g. stock options) as part of executive compensation packages.

Appendix

Table A1: Intensity of use of temporary workers and fixed-term contracts as a percentage of salaried employees (third quartile by sector)

	Temporary workers	Fixed-term contracts
Agri-food industry	9	8
Consumer goods industry	1	4
Automotive industry	7	1
Capital goods industry	10	4
Intermediate goods industry	7	4
Energy	3	2
Construction	21	4
Commerce	1	6
Transports	5	5
Financial activities	0	6
Real-estate activities	3	11
Business services	2	5
Personal and domestic services	0	9
Education, health, social services	0	15
Administration in private sector	0	4

Note: quartiles calculated on weighted distributions
Field: establishments of 20 and more employees in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

Table A2: Distribution of explanatory variables

	Frequency
Sector	
Agri-food industry	3,43
Consumer goods industry	4,18
Capital goods and automotive industries	5,92
Intermediate goods industry / energy	11,92
Construction	8,54
Commerce	20,58
Transports	7,25
Financial and real-estate activities	4,72
Business services	16,47
Personal and domestic services	7,14
Education, health, social services	9,85
Establishment size	
Less than 50 employees	64,37
From 50 to 100	20,28
From 100 to 200	9,27
From 200 to 500	4,82
500 and more	1,27
Age of establishment	
Less than 10 years	13,01
10 to 50 years	67,87
More than 50 years	19,13
Company turnover in € million	
Less than 5	18,94
5 to 10	32,81
10 to 100	30,38
More than 100	17,87
Competitive strategy	
Price	20,83
Innovation	6,89
Quality	56,4
Originality, reputation, diversity	12,23
Not applicable	3,64
Market share	
Less than 50%	61,29
More than 50%	12,85
Not applicable	25,87
State of the market	
Growing	56,43
Stable	28,79
Declining	14,79
Difficulty in predicting demand	71,21
Unusual variation in demand	41,56
Subcontractor	15,9
Prime contractor	53,71
Proportion of women	
Less than 15%	24,81
From 15% to 60%	48,77
More than 60%	26,43
Proportion of employees aged under 40	
Less than 40%	19,51
From 40 to 70%	52,27
More than 70%	28,23
Proportion of managers & superv; technicians & prof	
Less than 15%	29,3
From 15% to 30%	25,92
From 30 to 50%	18,24
More than 50%	26,54
Number of observations in the sample	2521
Weighted number of observations	112653

Note: in weighted % of establishments
Field: establishments of 20 and more employees in the private sector (excluding agricultural sector)
Source: 2004-2005 REPONSE survey, management representatives questionnaire, Dares

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