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**The Effects of ESOPs on Performance and Risk :  
Evidence from France\***

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## **The Effects of ESOPs on Performance and Risk : Evidence from France<sup>\*</sup>**

**Charles-Henri D'ARCIMOLES and Stéphane TRÉBUCQ**

### **Abstract :**

Approximately 220 of the 700 firms whose stock was traded on the main French markets had an employee stock ownership plan at the end of the year 2000. Average ownership was 3.7%. Employee ownership can be implemented for many reasons, and the relationship between ESOPs and performance still remains unclear. The purpose of this research is thus to determine how employee ownership can affect corporate performance and risk in France.

The results of previous empirical studies, while mixed, tend to suggest that, in some cases, *ESOPs* have a positive effect on certain measures of financial and market performance. This study improves upon previous work by using ownership, performance and risk variables, as well as control variables (sector, size, debt, growth), applied to a large sample of French firms. Cross-sectional regressions show some positive links between the presence of ESOPs and some financial performance measures, such as the return on equity and the return on investments. Links between ESOPs and risk variables are more complicated. The presence of ESOPs reduces the return on equity variability, but the more employee ownership there is the more the beta coefficient increases. This result seems to show that investors tend to consider firms with ESOPs to be more risky, even if their profitability is more stable.

Within the limitations of these results, we propose a general model introducing the concept of social capital. This model tries to explain how ESOPs can have positive and negative organisational consequences. Thus, opportunities for future research are definitely available.

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## **The Effects of ESOPs on Performance and Risk : Evidence from France**

Approximately one in three French companies currently has an ESOP (Employee Stock Ownership Plan). The average share capital thus held is almost 4%, which represents a total market capitalisation of some 40 billion euros. These figures are sufficient to confirm the importance of this financial and social phenomenon. On December 31, 2000, 251 French companies with a quotation on a regulated market (First, Second and New markets) had made this choice. Such a success is explained partially by the many expected positive effects of ESOPs. ESOPs are a proven vector of managerial control and entrenchment of managers, with economic performance which is difficult to determine. And yet, two thirds of the above mentioned companies remain without this incentive mechanism. Insofar as the economic effects of ESOPs appear to be clear and proven, why won't the majority of these companies adopt them ? Most of the empirical studies concerning this question are by Anglo-Saxon authors. They have tried to identify the relationships between ESOPs and company performance. The purpose of this paper is to provide a contribution to this field of research, based on unexploited French data.

We first present studies focussing on the relationships between ESOPs and company performance. We do not deal with social performance and behavioural effects in this paper. This choice leads to an empirical study, primarily focussed on the economic contribution of ESOPs. We then present our empirical findings, obtained from a sample of 701 French firms. Among these, 221 have an ESOP. We examine the correlation between ESOPs and risk and performance indicators, while controlling for size, sector, age, or leverage. Within the limitations of this study, we propose a general model explaining the contingency of empirical results, due to the diversity of structures, contexts and the vision of leaders. In fact, there are apparently similar devices behind different organisational and managerial realities.

### **1. ESOPs and Performance : Survey Shows Mixed Results**

Three assumptions are commonly used to explain the contribution of ESOPs to the performance of a company :

- They support cooperation between employees (Weitzman & Kruse, 1990).
- They support individual effort and engagement, making employees sensitive to economic stakes (Mitchell & al., 1990; Kruse, 1992).
- They increase identification with and a feeling of membership of the company (Cannell & Wood, 1992).

This framework has almost never been tested in France. Since the PhD thesis of Dondi (1992), there have been few empirical studies of French ESOPs. Among most recent studies, we can cite Fakhfakh (1994) on profit-sharing, Commeiras (1994) and Le Roux (1998) on the behavioural and productive effects of profit-sharing, and Brillet (1998) on the place of profit-sharing and ESOPs in wages policies.

North-American and British literature provides more numerous references. Authors such as Blasi, Conte & Kruse in the United States or Pendleton & Wright in the United Kingdom have contributed significantly to the development of this research field. Their work provides case studies and studies on samples, based on companies of extremely diverse sizes and sectors. Excepting Heinfelt & Curcio (1997), we do not know of any study that identified a negative effect of ESOPs on financial performance. As regards positive effects, they are not clearly established as yet.

A distinction is usually drawn between accounting and market measures of performance. Accounting measures help to understand profitability through productivity or profitability ratios. Market measures of performance are based on stock prices, with their possible shortcomings. Efficient markets provide a global measurement of value, which can dilute the specific effects of the studied processes.

### **1.1. ESOPs and Accounting Performance**

These studies used a longitudinal approach, over four to five years, in order to test the immediate impact after the introduction of ESOPs. Authors have generally retained usual indicators of economic profitability or employee productivity (Added value or sales turnover per employee). According to these studies, ESOPs increase average profits by 3% to 6% per year (Estrin & al., 1987; Kaufman, 1992; Kruse, 1993), when productivity is observed before and after the introduction of these plans. This indicates an annual productivity progression 6% higher than in non-ESOP firms.

The success of ESOPs is closely linked to the context of the firm. Some available studies show that companies obtain better results when ESOPs are integrated into an active participation policy. When ESOPs are introduced separately, they do not seem to have the same significant effects. This result was presented initially by Quarrey & Rosen (1987) and was confirmed by the General Accounting Office (GAO) (1987) as well as by Winther & al. (NCEO, 1989). These authors carried out a longitudinal study over 10 years, comparing results before and after ESOP implementation. They observed major disparities depending on the intensity and vigour of participative practices. The above researchers have divided companies into three groups, by order of descending participation. For the first group, the productivity gain varies from 8% to 11%. For the second group, there is no gain, and for the third there is a loss. This phenomenon could be explained by the lack of trust among employees, when they perceive any manipulation behind ESOPs. Moreover, these studies conclude there is no particular effect of company size, rate of union membership, industrial sector, demography or capital ownership by employees.

### **1.2. ESOPs and Market Performance**

In spite of their supposed positive effects on productivity and their behavioural effects on employees, it is not certain whether ESOPs can contribute to shareholder wealth. There are at least two reasons:

- First of all, information, management and remuneration costs, engaged by this device, may absorb the totality of productivity gains.
- Secondly, ESOPs can be used by managers to repel a hostile takeover bid and thus to entrench themselves.

The available empirical studies provide contradictory conclusions. If we consider the American ACAS index, which includes 350 North-American companies, it appears that ESOP firms outperform market indices by over 10%. For the period 1992-1998, the ACAS index has grown by 170%, against 143% for the DJ and 152% for the SP 500. The same applies to France, if we consider the IAS index. From 1990 to 2001, it has increased by 227% against 177% for the SBF 250 market index. However, such results do not imply any causal

relationship. ESOP firms can achieve better market performance for other reasons than the existence of ESOPs.

One of the most recent longitudinal studies is Mehran (NCEO, 1999), based on a sample of 382 ESOP firms, over the period 1971-1995. The stock exchange performance of these companies was 7% higher than that of non-ESOP companies (26.1% against 19.2%). This result is similar to Conte & al. (NCEO, 1995). ESOP firms have higher returns, but they are insufficient to compensate for additional risk due to their higher leverage.

The event studies of Chang (1990) show positive abnormal returns when ESOPs are announced. Davidson & Worell (1994) confirm these first results based on a sample of 48 companies. Mehran observes also that more than 60% of the companies in his sample recorded an increase in their stock prices in the two days following the announcement of the plan, with positive abnormal returns of 1.6%. However these positive reactions are not systematic, nor always durable. Thus, for companies with dispersed stockholders, which means a higher takeover risk, the announcement of ESOPs is badly perceived (Chang, 1990). This negative market reaction was also observed by Collat (NCEO, 1988) and confirms the entrenchment assumption. Besides these results, Winter (NCEO, 1995) tends to show that the positive effects of the ESOPs depend on the ownership structure. More precisely, ESOPs are positively correlated to performance when companies are controlled by outside shareholders, such as institutional investors or individuals holding at least 5% of the capital. Authors generally consider that these firms are better controlled and then it becomes more difficult for managers to entrench themselves.

Moreover, when the initial reaction is positive, investor opinion can change. Davidson & Worell (1994) notice that the positive variation of performance disappears within two years of ESOP introduction. Even if this is debatable, the only explanation of the authors is progressive dissolution of the short term announcement effect. Another possible reason is the statistical aggregation of contrasted situations, with the different effects of ESOPs according to the context and method of their implementation.

In spite of the spectacular increase of certain ESOP indices, performance effects seem to be more mitigated. This result can be attributed to three reasons:

- Publicly traded companies tend to consider ESOPs more as profit-sharing devices than cultural or managerial devices. The objective of ESOPs would therefore be more wealth redistribution than wealth creation.
- The share of capital held by employees is often too insufficient in privately held companies to provide any positive effects.
- ESOPs often replace 401(k) plans, without any significant change.

The main conclusion of this brief survey of the available literature is the positive but limited economic effect of ESOPs. Many questions still remain :

- How to explain these mixed results, bearing in mind that ESOPs obviously have different effects depending on the context of their implementation.
- Why do many companies not introduce ESOPs, if their effects are positive ?
- Is there any optimal threshold of capital ownership, beyond which the disadvantages of ESOPs exceed their positive effects ?

Despite a lack of a robust and unified theoretical framework, we attempt to examine the empirical relation between French ESOPs and performance in the next part of this paper.

## **2. The Effects of ESOPs on Performance and Risk : Empirical Evidence from France**

This research tests the likely relationship between, on one hand, various economic indicators characterising company performance and risk levels, and on the other hand, ESOP variables. Econometric analysis was carried out using a large sample of publicly traded French companies, on the First, Second and New markets on December 31, 2000.

### **2.1. Data Sources and Methodology**

The sample used for this study consists of 701 French companies. ESOP data was obtained from a survey of the 791 French publicly traded companies. Financial data was drawn from Worldscope, and was available for 701 French companies (see Appendix 1). The relationship existing between ESOPs and financial indicators was studied for the year 2000. Cross-sectional multiple regression analysis was used to analyse the dataset.

#### *2.1.1. Data Sources*

Data from this study has been used to evaluate how ESOP variables can influence company performance and risk.

#### **ESOP variables**

The main variables of this research concern employee ownership. There are several ways to measure ESOPs. One is the number of employee participants, another is the amount invested by employees in ESOPs. At present, such information is not always available for French companies. Employee capital ownership is more commonly published. This measure can indicate the presence or absence of ESOPs. Hence, a dummy variable can be introduced with the presence of ESOPs coded as 1 and their absence coded as 0 (variable ESOPB). A second continuous variable can be introduced, using the percentage of capital held by employees (variable ESOPK). This second variable indicates the degree of capital control that employee owners hold.

#### **Performance variables**

The financial and market performance measures used in this study were based on the Worldscope database. In view of the sample size, we use traditional performance indicators without any particular restatements. The accounting profitability ratios are ex-post measurements. They assess performance over a past period. Three profitability measures are used for the year 2000 : return on equity (variable ROE), return on assets (variable ROA), and return on investments (variable ROI). In addition, we use an ex-ante market performance measure, based on the following ratio : market capitalization over common equity (variable MKCE). This last measure makes it possible to take into account market anticipations of future performance.

#### **Risk variables**

The risk level is assessed by two different measures. The first corresponds to the standard deviation of return on equity, or specific risk, over the period 1997-2000 (variable RISKROE). The second corresponds to market beta, or systematic risk of the CAPM (Capital Asset Pricing Model). This estimates how returns amplify or lessen market variations (variable RISKBETA).

#### **Control variables**

It is important to control for economic and financial factors (leverage, growth, capital intensity). These variables have well-known independent effects on financial performance and

risk. We also employed cross-sectional regression using contingency factors such as sector, age, and size of the firm (see Appendix 5).

### 2.1.2. Methodology

#### **Univariate analysis**

We calculated average performance, risk and control variables for ESOP and non-ESOP companies for the year 2000. The differences between the two groups were analysed with the Mann-Withney and Kolmogorov Smirnov non-parametric statistics.

#### **Multivariate analysis**

We then applied a multivariate approach, using cross-sectional regression with performance and risk as dependent variables. Beforehand, we carried out a factorial analysis in order to compare the informational content of performance and risk variables. The explanatory models of performance and risk were established as follows :

$$\text{Performance} = f(\text{ESOP variables, risk variables, control variables})$$

$$\text{Risk} = (\text{ESOP variables, performance variables, control variables})$$

Due to the significant number of independent variables, we used ascending and descending selection method. We also used PLS (Partial Least Square) regression in order to deal with missing data and multicollinearity problems.

## **2.2. Empirical Results**

### 2.2.1. Distinctive Characteristics of ESOP Companies

Comparing ESOP- and non-ESOP companies (see Appendix 2), we observe a higher performance for the former. These companies are characterized by a less specific risk (ROE St. Dev.), and a higher systematic risk (market beta). However one can note the higher leverage of ESOP- compared to non-ESOP firms. ESOP companies have been more recently traded, but have larger size and higher rates of growth and internationalisation. Another significant finding, is the smaller share of capital owned by the main shareholder in ESOP- compared to non-ESOP firms. It can be seen that ESOP firms have clear distinctive characteristics (see Part 3 of this article).

### 2.2.2. Risk and Performance Determinants

According to factorial analysis, accounting performance variables (ROE, ROA, ROI) are very similar (see Appendix 3, tables 2 to 4). There is a significant negative effect on these accounting variables attributable to the level of risk (RISKROE). We also observe a significant positive effect on performance attributable to the main shareholder power (ACT1) and the presence of an ESOP (ESOPB). The degree of employee owner capital control (variable ESOPK) is insignificant. Graphic analysis shows the absence of any U-shape relationship between performance and employee ownership (variable ESOPK). Consequently, the hypothesis of an optimal level of employee ownership can be rejected (Dondi, 1992).

These empirical results are consistent with the agency theory predictions. Indeed, agency costs are supposed to increase when the shareholder power decreases, justifying a positive

relationship between profitability and share capital owned by the main shareholder. Moreover, ESOPs are supposed to enhance performance, reducing conflicts and the agency costs. The ESOP mechanism should align the employee and shareholder interests. This view is consistent with the extrinsic model of satisfaction (Klein, 1987). This model explains that employee implication strongly depends on the number and value of shares they own.

Our cross-sectional regression methodology only enables us to conclude that there is a positive correlation between ESOPs and performance. If ESOPs can improve performance, it remains possible that companies which already had superior performance implement ESOPs. A part of the relationship between ESOPs and performance can also be explained by the effects of ESOPs on risk. As can be seen in Appendix 3 (Tables 2 to 4, and 6), a higher specific risk reduces performance, but specific risk is reduced by the presence of ESOPs. Hence, ESOPs have an effect on performance via their risk reduction.

We find no observable relationship between the presence of ESOPs (ESOPB) and market performance (MKCE) (see Appendix 3, Table 5). This is probably due to :

- the larger size of ESOP firms and the significant negative effect of size (SIZE) on market performance (MKCE),
- the reduced specific risk of ESOP firms and the significant positive effect of specific risk (RISKROE) on market performance (MKCE).

If one considers risk factors, one can note the significant negative effect of the main shareholder's power (ACT1) on the market beta (RISKBETA) (see Appendix 3, Table 7). Thus, the higher degree of control of the main shareholder is likely to lessen systematic risk. The percentage of capital held by employee owners (ESOPK) has an opposite effect, with a significant positive influence on market beta. As can be seen in Appendix 2, ESOP firms have higher betas. Such a result is particularly interesting for fund managers. As the Capital Asset Pricing Model stipulates, the stock return of a firm is composed of the progression of the market index multiplied by the market beta of the firm, to which is added a constant. Thus, stock returns of ESOP firms tend to amplify market index variations to a greater extent. If such a relationship remains stable, there will be higher returns for ESOP firms if the market index increases, with the advantage of stimulating employee optimism and implication. However, such a mechanism could be reversed in the case of a downturn in the market. Under such conditions, the link between ESOPs and stock returns may hold if employee morale is influenced by market fluctuations. This relationship needs to be explained and explored in greater depth, in order to obtain a better knowledge of beta, and to understand its possible social and managerial determinants.

We can sum up the above by presenting our three main empirical results :

- We observe no optimal threshold of employee ownership which might maximise performance.
- The presence of ESOPs is positively correlated to performance, but the relationship of causality remains complex, due to intermediate variables, such as specific risk.
- ESOP firms have higher market betas. Moreover, the percentage of capital held by employee owners has a significant positive effect on systematic risk.

These results should encourage researchers to gain a deeper knowledge of the economic and social realities of ESOPs. It is necessary to understand the diversity of contexts, and to identify and cluster their organisational and managerial similarities. Underlying this is the

question of the boost to social and organisational performance attributable to ESOPs, with hopes of new economic gains.

### **3. ESOPs and Organisational Dynamics: Conditions Governing Economic Performance**

Finally, we would like to examine the different organisational contexts of ESOPs and in which conditions they might be efficient. The contextual determinants of the presence of ESOPs, and the analysis of how they might be efficient can be understood at either an individual or a collective level.

#### **3.1 Contextual Determinants of ESOPs**

The main variables influencing the probability of the presence of ESOPs (see Appendix 4, Results of Logistic Regression) can be classified into five categories. Sector and size constitute two contingency variables which are strongly associated with the presence of ESOPs. Firms which belong to the automobile sector have a higher probability of possessing an ESOP. Concerning the size variable, there is probably a greater need to ensure strong cohesion and better coordination of the individuals in larger companies, which have to face a growing complexity and more intense competition, especially within the car industry.

Three other key variables influencing the probability of ESOPs presence are performance (ROE and MKCE), the number of years the company has been quoted (AGE) and the power of the main shareholder (ACT1). Accounting and market performance measures are positively linked to the probability of ESOP presence. The number of years of quotation (AGE) and the power of the main shareholder (ACT1) lessen the likelihood of ESOP presence.

These results help to understand the conditions in which ESOPs are introduced. It appears that ESOPs can be considered as a tool which is particularly well-adapted to the resolution of management problems for large companies operating in competitive environments. In addition, managers who are confident about the future performance of their company could be more inclined to encourage their employees to become shareholders of their own company. Managers might believe that making their employees owners can reduce agency conflicts. It is all the more necessary when the main shareholder has limited control (See Appendix 2). In this case, managers could use ESOPs to entrench themselves, thus avoiding any hostile takeover with the help of employee support. Despite this possible entrenchment strategy, ESOPs are finally linked with enhanced financial performance.

In view of the above, it is understandable that companies introduce ESOPs under extremely specific conditions. This means that they must pay particular attention to the conception and means of introduction of ESOP devices. Their managerial determinants can be analysed from two different viewpoints : either individual shareholder satisfaction or collective organisational capital.

#### **3.2 ESOPs and Individual Incentive: Primacy of Extrinsic Remuneration Confirmed**

Following the views of Samuelson (1989), some authors consider that ESOPs are often perceived as complex devices. They remain too far removed from the concerns of employees

to incite them to modify their behaviour at work. However, many studies from the early eighties show that ESOPs have a positive effect on employee attitudes and behaviour. A study by the NCEO, quoted by Rosen & al. (1986), consisting of a 140 item questionnaire, was administered to almost 3,700 employees belonging to 45 companies. After controlling for size, sector or labour demography, the results show that behavioural effects seem to depend on three factors:

- the financial contribution of each company to individual plans,
- the intensity of participative management practices,
- the quality of communication and information concerning managerial objectives and implementation methods.

The NCEO research is not alone in pointing out diversity of the incentive aspects of ESOPs. On one hand, financial stimulation, and on the other, participative and managerial dynamics, appear essential for the success of ESOPs and their economic contribution. The importance of the financial and remuneration argument is developed by Klein (1987). Thus, one can suppose that companies initially use the ESOP as a participation tool for wealth redistribution, making necessary the achievement of a good preliminary performance. For this reason, good performance could be a cause, and not a consequence, of ESOPs. As we have already explained, the results obtained by our empirical study do not make it possible to dismiss this assumption for at least two reasons :

- The first, in common with the majority of the available studies, is due to the structure of the dataset, with the lack of a temporal perspective. Hence, it is impossible to establish the direction of causalities between performance and ESOPs.
- The second is the absence of significant relationships between the various performance indicators and the percentage of capital held by employees (ESOPK). If ESOPs were an intrinsic performance factor, then a positive correlation would have been observed. There is no doubt that this statistical independence calls the economic contribution of ESOPs into question, without totally ruling it out. This suggests that other variables could influence the relationship between ESOPs and performance. It also casts doubt upon the existence of a simple causal relationship between the two.

Results obtained with the ESOPK variable show that employee shareholder status and control are insufficient to change employee attitudes and behaviour in a way that improves the overall performance of the firm. This is consistent with Klein's conclusions on the weak impact of intrinsic satisfaction derived from shareholder control. Nevertheless, this does not signify that extrinsic economic elements are the only objective of ESOPs. Management has other direct and more efficient means to improve employee wages. The choice of a shareholding device is therefore not neutral. Moreover, many studies have validated a complementarity of the participative, remuneration and managerial objectives. Several authors have noted the increasing contribution of participative practices, following introduction of ESOPs. Conversely, Kardas & al. (1994) show that participative practices prepare employees for their future participation in ESOPs.

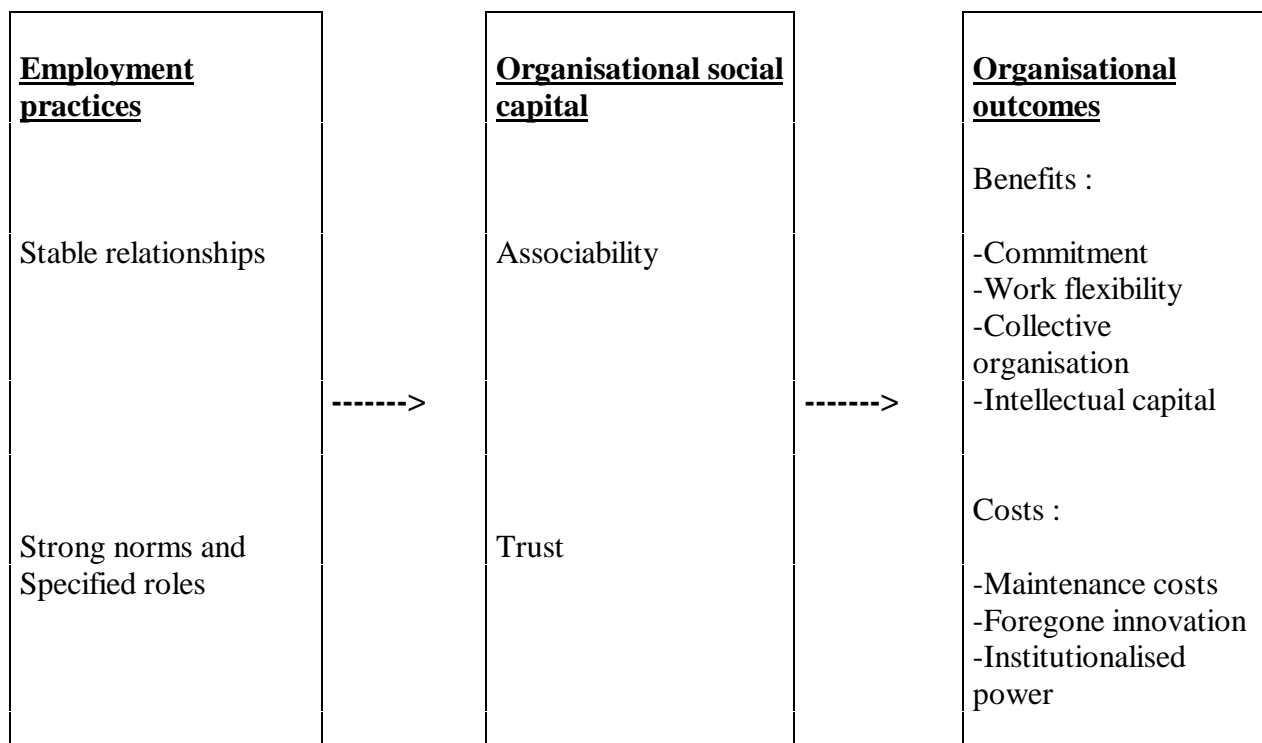
The creation of a combined feeling "property" and "satisfaction" in employee owners could therefore be decisive in modifying their attitudes and behaviour. Employees could then internalise shareholders' interests. However, the alignment of employee and shareholder interests needs more than mere individual incentives to be achieved. Beyond the economic and financial determinants, the analysis must also take the collective dynamics of ESOPs into account. The objectives of cohesion and solidarity, if they exist, can give ESOPs an additional chance of success.

### 3.3 ESOPs and Organisational Cohesion: Reinforcing the Creation of Organisational Capital

Social capital can benefit both the organisation (e.g. creating value for shareholders) and its members (e.g. enhancing employee skills), but remains difficult to identify as an asset embedded in relationships (Nahapiet & Ghoshal, 1998; Burt, 1997; Coleman, 1990). The social capital models have been adapted to business research, in particular by Leana & Van Buren (1999), thus defining "organisational social capital". Members are individuals who have an employment relationship with the firm. Unlike other kinds of relationships based on incentive and control as in agency models, individuals build strong ties and social networks for cooperation. The following figure shows that the objective is to develop a capital which is both collective and individual. This capital is based on "associability" on one hand, and on "trust" on the other.

This theoretical framework has been tested to a lesser extent than agency models, and has almost never been used to conceptualise remuneration questions. Yet, it could be useful in grasping managerial and ESOP dynamics. As a supposed factor of cohesion and stability, ESOPs are indeed a possible determinant of social capital creation. The economic contribution of ESOPs could then be realised through organisational social capital creation, on the condition that engaged costs do not exceed benefits.

**Figure 1 :** A model of Organisational Social Capital by Leana & Van Buren (1999)



*a) ESOPs and Associability: Risk Control and Distribution*

As in the case of every potentially efficient social practice, ESOPs can also be a source of uncertainty and risk, and their positive contribution should never be taken for granted. Therefore, ESOPs become an element of social risk defined as the variable part of the economic results linked to human resources and their management. The identification and prevention of these risks are still unexplored. Undoubtedly it would be desirable to broaden the social risk concept not only to conflicts but also to quality, skills, innovation or customer satisfaction. The organisational social capital model suggests that individual and collective incentives of ESOPs can be useful to reduce social risks. ESOPs incentives could improve employee reactivity and narrow economic risks. For this reason, ESOP companies could benefit from more stable economic and financial performance.

As can be seen in Appendix 2 and Table 6 (Appendix 6), French ESOP firms have a reduced specific risk, despite their higher leverage. At the same time, ESOPs do not reduce the market beta, known as systematic risk. Thus, ESOPs could simultaneously reduce the specific risk of the company and increase its systematic or market risk. This is possible because of investors' perceptions. Under these conditions, the financial logic of ESOPs can transform the nature and perception of the firm. ESOP firms could then become more stable and more reactive to markets.

*b) ESOPs and Trust: Stability Costs*

Creation and management of organisational social capital can generate non negligible costs (see Figure 1), including :

- "Maintenance Costs"

These costs concern investment in human capital (training, working conditions, ergonomics), specific or general knowledge, along with the maintenance of an organisational surplus. The introduction of job security is necessary to ensure the trust required by the model. While defending employment, companies give up advantages of immediate financial flexibility. In doing so, they take on a temporary cost in order to finance higher wages. The final profitability of this decision is obviously uncertain, since the company has no guarantee of recovering its investment.

- "Foregone Innovation"

The effects of organisational social capital on innovation and change in work processes are not clearly known. This social capital, with its trust component, may facilitate the employee initiative and risk taking essential to innovation. Without this trust, there is no chance that employees will expose themselves or commit themselves to changes with dubious consequences. However, organisational social capital and trust can also hamper innovation through norms which may contribute to inertia.

- "Institutionalised Costs"

Organisational social capital can also facilitate the entrenchment of managers, with a risk of penalizing the expression of new ideas and of reducing the diversity of strategic choices. It is a matter of "breaches of trust" and a question of power structures which tend to maintain a status quo.

As a supposed factor of organisational social capital, ESOPs expose the company to the same maintenance, innovation and institutionalised costs. Expenditure for the training and information of employee owners can rise perceptibly. The same applies to financial efforts intended to safeguard employment. We possess little information on innovation and institutionalised costs, although Gamble (2000) has found that ESOP firms had smaller R&D expenditures. Researchers still have to test and measure ESOP costs and the disturbance costs linked to employee ownership. The assumption of an excess cost of ESOPs, defended by the agency theorists, still has to be confirmed.

### **Conclusion**

The question of the organisational cost of ESOPs still has to be clarified further. This is probably why empirical results still remain mixed. Notwithstanding, the dataset available to undertake this research made it possible to progress in this area. Performance and risk indicators are indeed related to ESOP variables.

Future research could have recourse to other methodologies in this very critical area of business management :

- Social data could be used to test relationships between ESOPs and human resources management. Indeed, it is extremely probable that ESOPs have a positive impact on performance when human resources management is coherent.
- Longitudinal studies could also be possible to reveal the direction of causalities existing between ESOPs and performance. It is crucial to duplicate time-series analyses in France similar to those that have been undertaken in the United States and United Kingdom.
- Case studies could also be useful to investigate the economic, organisational and social context of ESOPs and their relationship to performance.

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### APPENDIX 1 : Descriptive statistics

Table 1. Number of ESOP firms in France

	Sector	N (Total)	N (ESOP firms)	Percentage of ESOP firms
01	Energy	8	3	38 %
02	Intermediate goods	36	13	36 %
03	Construction	17	10	59 %
04	Capital goods	79	25	32 %
05	Automobile	17	11	65 %
06	Other consumer goods	107	32	30 %
07	Food	53	11	21 %
08	Distribution	68	22	32 %
09	Other services	186	71	38 %
10	Property	24	2	8 %
11	Financial services	51	16	31 %
12	Investment companies	55	5	9 %
	Total	701	221	32 %

Table 2. Percentage of Employee Ownership (ESOPK) in French companies

	Sector	Mean (ESOPK)	Std.Dev. (ESOPK)	Minimum (ESOPK)	Maximum (ESOPK)
01	Energy	1.43	1.32	0.61	2.96
02	Intermediate goods	3.40	2.05	0.07	6.55
03	Construction	5.27	6.68	0.12	23.00
04	Capital goods	4.19	5.66	0.09	27.00
05	Automobile	3.83	7.98	0.25	26.02
06	Other consumer goods	2.28	2.26	0.06	8.73
07	Food	2.15	2.52	0.02	7.94
08	Distribution	1.61	1.44	0.11	5.00
09	Other services	5.64	8.59	0.05	40.54
10	Property	0.23	0.18	0.10	0.36
11	Financial services	3.15	2.98	0.10	10.90
12	Investment companies	0.99	0.76	0.10	2.00
	Total	3.73	5.93	0.02	40.54

## APPENDIX 2 – Distinctive Features of ESOP Firms

Table 1. Main differences between ESOP- and non-ESOP Firms

	Variable	Valid data (N)	Average for total sample	Average for ESOP firms	Average for non-ESOP firms	Mann Whitney (p-value)	Kolmogorov Smirnov (p-value)
Return on equity	ROE	603	7.11	10.39	5.48	*** 0.000	*** 0.000
Return on assets	ROA	614	1.40	1.41	1.39	0.164	0.138
Return on investments	ROI	584	2.28	7.95	- 0.37	*** 0.002	*** 0.001
Market cap. / Common equity	MKCE	596	3.78	5.12	3.13	*** 0.000	*** 0.000
ROE Std. Dev. (Specific Risk)	RISKROE	498	14.93	10.63	16.85	** 0.024	0.133
Market Beta (Systematic Risk)	RISKBETA	591	0.64	0.82	0.56	*** 0.000	*** 0.003
Leverage	DEBT	560	95.38	103.66	91.26	** 0.041	* 0.067
Long-term leverage	LTDEBT	567	55.67	63.20	51.91	*** 0.001	*** 0.003
Sales growth	SGROWTH	632	36.11	44.79	31.82	*** 0.001	*** 0.002
Employees growth	EGROWTH	527	24.83	34.86	19.54	*** 0.000	*** 0.000
Capital intensity	APE	512	2237.87	863.73	2995.73	0.799	0.387
Internationalisation	FORS	117	43.54	54.44	35.11	*** 0.001	*** 0.007
Age of quotation	AGE	652	19.97	16.92	21.44	*** 0.001	*** 0.009
Size	SIZE	526	2.95	3.45	2.67	*** 0.000	*** 0.000
Main shareholder's power	ACT1	688	47.97	38.46	52.30	*** 0.000	*** 0.000

\*\*\*, \*\*, \* : Significant difference at 1%, 5% et 10%.  
 (Definitions of variables : see Appendix 5 )

### APPENDIX 3 – Performance and Risk Determinants

Table 1 – Regression Synthesis

	Dependent variables					
	Performance :				Risk :	
	ROE	ROA	ROI	MKCE	RISKROE	RISKBETA
<b>Independent variables :</b>						
ESOPB	+ (**)		+ (**)		- (*)	
ESOPK						+ (**)
DEBT						- (**)
LTDEBT			- (***)			
SGROWTH						
EGROWTH					+ (***)	+ (***)
APE		+ (*)				
AGE						
SIZE				- (**)		
ACT1	+ (***)	+ (***)	+ (***)			- (***)
S04						+ (***)
S09				+ (***)	+ (*)	+ (***)
ROE					- (***)	
ROA						- (***)
ROI						
MKCE					+ (**)	+ (***)
RISKROE	- (***)	- (***)	- (***)	+ (**)		
RISKBETA				+ (***)		
	See Appendix 3 Table 2	See Appendix 3 Table 3	See Appendix 3 Table 4	See Appendix 3 Table 5	See Appendix 3 Table 6	See Appendix 3 Table 7

+ ou - : Symbol of the relationship,  
 (\*\*\*) , (\*\*) ou (\*) : Significant relation at 1%, 5% and 10%.  
 (Definitions of variables : see Appendix 5 )

Table 2 - Regression using ROE as the dependent variable

	Sign of the relationship	Linear Regression (ascendant method)			Linear Regression (descendant method)			PLS Regression
		Standardised coefficients	t statistic	P value	Standardised coefficients	t statistic	P value	Coefficients
<b>Retained variables :</b>								
(constant)			0.708	0.479		0.708	0.479	0.1714
<b>RISKROE</b>	-	- 0.319	- 6.268	0.000	- 0.319	- 6.268	0.000	- 0.1767
<b>ACT1</b>	+	0.154	2.900	0.004	0.154	2.900	0.004	0.0983
<b>ESOPB</b>	+	0.136	2.538	0.012	0.136	2.538	0.012	0.0437
		R <sup>2</sup> = 0.142; Adjusted R <sup>2</sup> = 0.134 Sample size (N)= 342 F = 18.628 p-value = 0.000 Multicollinearity : All VIF < 1.126			R <sup>2</sup> = 0.142; Adjusted R <sup>2</sup> = 0.134 (N = 342) F = 18.628 p-value = 0.000 Multicollinearity : All VIF < 1.126			R <sup>2</sup> = 0.052 (N = 600)
<b>Excluded variables :</b>		RISKBETA, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S11, AGE, SIZE, ESOPK			RISKBETA, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S11, AGE, SIZE, ESOPK			

Table 3 - Regressions using ROA as the dependent variable

	Sign of the relationship	Linear Regression (ascendant method)			Linear Regression (descendant method)			PLS Regression
		Standardised coefficients	t statistic	P value	Standardised coefficients	t statistic	P value	Coefficients
<b>Retained variables :</b>								
(constant)			3.613	0.000		2.325	0.021	0.0457
<b>RISKROE</b>	-	- 0.331	- 6.529	0.000	- 0.312	-6.115	0.000	- 0.1835
<b>DEBT</b>	(a)	- 0.171	3.406	0.001	- 0.188	-3.744	0.000	0.0041
<b>SGROWTH</b>	(a)	0.147	2.844	0.005	0.137	2.655	0.008	- 0.2517
<b>ACT1</b>	+	0.144	2.821	0.005	0.168	3.160	0.002	0.0748
<b>APE</b>	+				0.096	1.901	0.058	0.0430
<b>ESOPB</b>	(a)				0.105	1.970	0.050	- 0.0001
		R <sup>2</sup> = 0.156 ; Adjusted R <sup>2</sup> = 0.146 Sample size (N) = 342 F = 15.559 p-value = 0.000 Multicollinearity : All VIF < 1.063			R <sup>2</sup> = 0.173; Adjusted R <sup>2</sup> = 0.158 (N = 342) F = 11.669 p-value = 0.000 Multicollinearity : All VIF < 1.147			R <sup>2</sup> = 0.165 (N = 611)
<b>Excluded variables :</b>		RISKBETA, LTDEBT, EGROWTH, APE, S01 à S11, AGE, SIZE, ESOPK			RISKBETA, LTDEBT, EGROWTH, S01 à S11, AGE, SIZE, ESOPK			

(a) Sign of coefficients are opposed for ordinary and PLS regressions.

Table 4 – Regression using ROI as the dependent variable

	Sign of the relationship	Linear Regression (ascendant method)			Linear Regression (descendant method)			PLS Regression
		Standardised coefficients	t statistic	P value	Standardised coefficients	t statistic	P value	Coefficients
<b>Retained variables :</b>								
(constant)			10.433	0.000		1.667	0.097	0.0359
<b>RISKROE</b>	-	- 0.330	- 6.151	0.000	- 0.298	-5.740	0.000	- 0.0921
<b>LTDEBT</b>	-	- 0.193	- 3.696	0.000				- 0.0018
<b>EGROWTH</b>	(a)	0.154	2.836	0.005				- 0.0980
<b>SGROWTH</b>	(a)				0.165	3.154	0.002	- 0.0511
<b>ACT1</b>	+				0.162	2.975	0.003	0.0332
<b>ESOPB</b>	+				0.138	2.531	0.012	0.0267
		R <sup>2</sup> = 0.130 ; Adjusted R <sup>2</sup> = 0.122 Sample size (N) = 333 F = 16.386 p-value = 0.000 Multicollinearity : All VIF < 1.108			R <sup>2</sup> = 0.159 ; Adjusted R <sup>2</sup> = 0.146 (N = 333) F = 12.372 p-value = 0.000 Multicollinearity : All VIF < 1.158			R <sup>2</sup> = 0.055 (N = 582)
<b>Excluded variables :</b>		RISKBETA, DEBT, EGROWTH, APE, S01 à S11, AGE, SIZE, ESOPK			RISKBETA, DEBT, SGROWTH, APE, S01 à S11, AGE, SIZE, ESOPK			

(a) Sign of coefficients are opposed for ordinary and PLS regressions.

Table 5 - Regression using MKCE as the dependent variable

	Sign of the relationship	Linear Regression (ascendant method)			Linear Regression (descendant method)			PLS Regression
		Standardised coefficients	t statistic	P value	Standardised coefficients	t statistic	P value	Coefficients
<b>Variables retenues :</b>								
(constante)			1.636	0.103		1.117	0.265	0.0635
<b>RISKROE</b>	+				0.103	1.984	0.048	0.0321
<b>RISKBETA</b>	+	0.294	5.387	0.000	0.258	4.567	0.000	0.0155
<b>S09</b>	+	0.203	3.865	0.000	0.194	3.687	0.000	0.0638
<b>SIZE</b>	-	-0.140	-2.556	0.011	-0.113	-2.074	0.039	-0.0035
<b>ACT1</b>	(a)	0.116	2.190	0.029	0.116	2.208	0.028	-0.0638
<b>ESOPB</b>	(a)	0.214	3.850	0.000	0.215	3.910	0.000	-0.0524
		R <sup>2</sup> = 0.204 ; Adjusted R <sup>2</sup> = 0.192 Sample Size (N) = 341 F = 17.12 p-value = 0.000 Multicollinearity : All VIF < 1.296			R <sup>2</sup> = 0.207 ; Adjusted R <sup>2</sup> = 0.193 (N = 348) F = 14.835 p-value = 0.000 Multicollinearity : All VIF < 1.368			R <sup>2</sup> = 0.011 (N = 596)
<b>Excluded variables</b>		RISKROE, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S08, S10, S11, AGE, SIZE, ACT1, ESOPK			DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S03, S05 à S08, S10, S11, AGE, SIZE, ACT1			
<b>Non retained variables</b>					ESOPK (VIF > 1.5 when ESOPK is included)			

(a) Sign of coefficients are opposed for ordinary and PLS regressions.

Table 6 – Regression using RISKROE as the dependent variable

	Sign of the relationship	Linear Regression (ascendant method)			Linear Regression (descendant method)			PLS Regression
		Standardised coefficients	t statistic	P value	Standardised coefficients	t statistic	P value	Coefficients
<b>Retained variables :</b>								
(constant)			6.220	0.000		5.470	0.000	0.5921
<b>ROE</b>	-	-0.127	-2.512	0.012	-0.121	-2.408	0.017	-0.1514
<b>MKCE</b>	+	0.156	3.055	0.002	0.151	2.799	0.005	0.0360
<b>EGROWTH</b>	+	0.203	3.981	0.000	0.184	3.572	0.000	0.1511
<b>SIZE</b>	-	-0.186	-3.734	0.000	-0.143	-2.595	0.010	-0.1181
<b>S09</b>	+				0.088	1.677	0.094	0.1405
<b>ESOPB</b>	-				-0.102	-1.834	0.068	-0.0887
		R <sup>2</sup> = 0.122 ; Adjusted R <sup>2</sup> = 0.112 Sample Size (N) = 365 F = 16.017 p-value = 0.000 Multicollinearity : All VIF < 1.099			R <sup>2</sup> = 0.138 ; Adjusted R <sup>2</sup> = 0.123 (N=365) F = 9.53 p-value = 0.000 Multicollinearity : All VIF < 1.295			R <sup>2</sup> = 0.120 (N = 498)
<b>Excluded variables</b>		DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S11, AGE, SIZE, ACT1, ESOPK			DEBT, LTDEBT, SGROWTH, APE, S01 à S09, AGE, SIZE, ACT1, ESOPK			
<b>Non retained variables</b>		ROA, ROI (VIF > 1.5 when ROA and ROI are included)			ROA, ROI (VIF > 1.5 when ROA and ROI are included)			

Tableau 7 - Regression using RISKBETA as the dependent variable

	Sign of the relationship	Linear Regression (ascendant method)			Linear Regression (descendant method)			PLS Regression
		Standardised coefficients	t statistic	P value	Standardised coefficients	t statistic	P value	Coefficients
<b>Retained variables :</b>								
(constant)			5.683	0.000		5.683	0.000	0.6316
<b>ROA</b>	-	- 0.191	- 4.323	0.000	- 0.191	- 4.323	0.000	- 0.1869
<b>MKCE</b>	+	0.215	4.764	0.000	0.215	4.764	0.000	0.0126
<b>DEBT</b>	-	- 0.102	- 2.467	0.014	- 0.102	- 2.467	0.014	- 0.0688
<b>EGROWTH</b>	+	0.183	4.124	0.000	0.183	4.124	0.000	0.2044
<b>S04</b>	+	0.186	4.328	0.000	0.186	4.328	0.000	0.0580
<b>S09</b>	+	0.248	5.389	0.000	0.248	5.389	0.000	0.2189
<b>ACT1</b>	-	- 0.154	- 3.630	0.000	- 0.154	- 3.630	0.000	- 0.1319
<b>ESOPK</b>	+	0.105	2.494	0.013	0.105	2.494	0.013	0.1066
		R <sup>2</sup> = 0.367 ; Adjusted R <sup>2</sup> = 0.354 Sample Size (N) = 379 F = 27.29 p-value = 0.000 Multicollinearity : All VIF < 1.254			R <sup>2</sup> = 0.367 ; Adjusted R <sup>2</sup> = 0.354 (N = 379) F = 27.29 p-value = 0.000 Multicollinearity : All VIF < 1.254			R <sup>2</sup> = 0.288 (N = 587)
<b>Excluded variables :</b>		ROE, ROI, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S03, S05 à S08, S10, S11, AGE, SIZE, ACT1, ESOPB			ROE, ROI, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S03, S05 à S08, S10, S11, AGE, SIZE, ACT1, ESOPB			

## APPENDIX 4 – Contextual Determinants of the Presence of ESOPs

Table 1 - Logistic regression using ESOPB as the dependent variable

	Sign of the relationship	Logistic regression (ascendant method) (b)			Logistic regression (descendant method) (b)		
		Coefficients	Wald	P value	Coefficients	Wald	P value
<b>Retained variables :</b>							
(constant)		- 3.0386	22.1609	0.0000	-3.1999	24.2055	0.0000
<b>ROE</b>	+	0.0135	6.3704	0.0116	0.0129	5.8132	0.0159
<b>MKCE</b>	+	0.0663	8.8629	0.0029	0.0666	9.0095	0.0027
<b>S05</b>	+	1.9740	6.9426	0.0084	2.0059	7.0566	0.0079
<b>S11</b>	+				1.4097	2.9895	0.0838
<b>AGE</b>	-	- 0.0107	4.2210	0.0399	- 0.0124	5.2030	0.0225
<b>SIZE</b>	+	1.1087	38.1849	0.0000	1.1558	39.9063	0.0000
<b>ACT1</b>	-	- 0.0322	22.1777	0.0000	- 0.0319	21.7221	0.0000
		Chi square (6 df) = 117.47 ; P-value = 0.0000 (N = 348) Overall correct percentage : 75.29%			Chi square (7 df) =120.39 ; P-value 0.0000 (N = 348) Overall correct percentage: 75.57%		
<b>Excluded variables :</b>		CFS, RISKBETA, RISKROE, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S04, S06 à S10			ROE, CFS, RISKBETA, DEBT, LTDEBT, SGROWTH, EGROWTH, APE, S01 à S04, S06 à S10		

(b) The cut value is 0.5

## APPENDIX 5 – Definitions of Variables

<b><i>Variables of Performance and Risk</i></b>	
ROE	Return on Equity (year 2000)
ROA	Return on Assets (year 2000)
ROI	Return on Invested Capital (year 2000)
MKCE	Market Capitalization /Common Equity year 2000
RISKBETA	Market Beta (year 2000)
RISKROE	ROE Standard Deviation for years 1997 to 2000
<b><i>Economic and Financial Variables (leverage, growth, capital intensity, internationalization)</i></b>	
DEBT	Total debt / Common Equity (year 2000)
LTDEBT	Long-term Debt / Common Equity (year 2000)
SGROWTH	Sales Growth between 1999 and 2000
EGROWTH	Employee growth between 1999 and 2000
APE	Assets per Employee (year 2000)
FORS	Percentage of International Sales (year 2000)
<b><i>Variables of Contingency (sector, age, size, control)</i></b>	
S01	Dummy variable (1=energy sector, 0=others)
S02	Dummy variable (1=intermediate goods sector, 0=others)
S03	Dummy variable (1=construction sector, 0=others)
S04	Dummy variable (1=capital goods sector, 0=others)
S05	Dummy variable (1=automobile sector, 0=others)
S06	Dummy variable (1=other consumer goods sector, 0=others)
S07	Dummy variable (1=food sector, 0=others)
S08	Dummy variable (1=distribution sector, 0=others)
S09	Dummy variable (1=other services sector, 0=others)
S10	Dummy variable (1=property sector, 0=others)
S11	Dummy variable (1=financial services sector, 0=others)
AGE	Number of years since the first quotation
SIZE	Logarithm of the Number of Employees (year 2000)
ACT1	Percentage of Capital Owned by the Main Shareholder (year 2000)
<b><i>Variables of Employee Ownership (existence and importance)</i></b>	
ESOPB	Dummy variable (1=ESOP, 0=No ESOP) (year 2000)
ESOPK	Percentage of Capital Owned by Employees (year 2000)