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Effects of Employee Ownership on the Performance of French Companies SBF120: Empirical Validation

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Abstract
Given divergent results of studies on the implications of employee ownership on performance and low interest granted to the probability of the existence of an eventual causality. The purpose of this contribution is to check whether there is a causal link between the two presuppositions and if so, whether the causality is unidirectional or bidirectional. Based on the econometrics of panel data, the error correction models and low exogeneity tests, the results of the econometric treatments, on a sample of French companies quoted on the stock exchange 120 over a period running from 2000 to 2012, reveal the existence of two long-term dynamics in a single direction from the performance indicators (ROA and ROE) to employee ownership.

1. Introduction

Employing a range of psychosocial and financial phenomena, many studies have attempted to sketch collective implications, or financial and fiscal virtues which the organization enjoys following the introduction of the employee ownership, as measured by all types of indicators: growth, profitability, productivity, stock prices, among others [Ginglinger et al, (2011); Kruse et al, (2010); Freeman et al, (2011); Pendleton and Robinson (2010); Bova et al, (2012) and others]. Notwithstanding, the results of these attempts differed and could not match on conclusive results, which does not reach conclusive relationship between the employee ownership and performance. However, the effectiveness of employee-share ownership, a widely discussed phenomenon that has attracted the interest of several disciplines in management science, has not been clearly demonstrated; hence we ask the following question:

Do we observe a performance that improves with the introduction of the employee ownership or is it the most successful companies pursuing this practice?

To approve the underlying reasons for the divergence of results, relatively few studies questioned the probability of the existence of a possible causal link between the presence of employee ownership and performance [Trébucq,(2002); D'Arcimoles and Trébucq, (2003); Caramelli, (2006); Caramelli and Briole, (2007); Aubert (2007)] to the extent that it appears to them that there is a relationship of mutual influence that can form a virtuous circle, leading them to suggest a circular relationship hypothesis, illustrating and justifying the confluence of psychosocial and financial parameters.

In contrast, almost all researches highlight the divergence of results in terms of correlations and causality patterns.

Indeed, the purpose of this contribution is to check whether there is a causal link between the employee ownership and the performance and if so, whether this causality is unidirectional or bidirectional based on some recent developments of the time series econometrics, error correction models and low exogeneity tests. The interest that one carries to this problem is that it has been, to our knowledge, with no funds for reflection, and remains a virgin field of investigation empirically. So we start with a review of literature that will allow us to formulate hypotheses about the effects of employee ownership on financial performance and vice-versa. These hypotheses will then be tested in the empirical analysis, using a sample of 108 French companies in the SBF 120.

2. An investigation of the relationship between employee ownership and performance: Theoretical basis and research hypotheses

2.1 The effects of employee ownership on performance

Many academic and empirical studies have examined the organizational implications of the employee ownership. They conclude to the positive effects of said device performance, levied on economic performance measures (productivity, financial performance, growth ...). Let us try to explain the following alternately.

Employee ownership, a source of funds for the company

Companies that face the insufficiency of their own funds in comparison to what is necessary for their operation and growth [Ittner et al, (2003)], need to remedy this deficiency, have a dilution lower capital and encourage long-term savings, invested in shares. Employee- share ownership meets this goal due to the low share of capital offered to shareholders and employees because of the attractive and stable means of financing, tax-efficient that presents, allowing the company some financial mobilization that will strengthen cash. Such mobilization would allow it not only to send a positive signal to financial markets of its financial strength, but also an effective management and this through blocked amounts that employees have invested and made available [Alidou, (2011)]. These funds invested can indeed be lifted, and the company enjoys tax benefits attached to them, which can only be done with a classical capital increase.

Employee ownership: A means to support growing businesses

Innovative small and medium enterprise encounter funding difficulties related to poor development of venture capital, the difficulty to access the credit market and the capital and their little incentive pay. Employee ownership could provide solutions to these problems, since it is a deferred compensation that increases the basic salaries and makes up for their weakness. This device also allows the undertakings concerned to support their growth thanks to its mechanical effect on the market price, resulting in a significant excess return of actions having put up and a positive reaction to their markets [Chang, (1990); Beatty (1995); Rauh (2006)]. Furthermore, greater resistance to businesses vagaries of the economy was observed by [Blair et al, (2000); D'Arcimoles and Brillet, (2000); Fakhfakh, (2004); Sesil et al, (2007) and others] showing that business growth with an Employee stock ownership plan was faster than that of not having companies. Indeed, the study conducted by Blair et al, (2000), points out that companies with a

significant employee share were 20% more likely to survive over the period 1983 to 1995 corroborating the results of Rhokeun Park, Douglas Kruse and James Sesil et al, (2004), emphasizing that holding 5% or more of capital by employee shareholders, allow US public companies to have 75% more likely to survive over the period 1988-2001.

Employee ownership: A tool that improves productivity

Many theoretical and empirical researches have shown that the most successful companies in terms of productivity are those that have adopted an employee ownership level whatever its form [Pérotin and Robinson (2003); Bryson and Freeman (2010); Freeman et al (2011); Kruse et al (2010) and others]. The underlying reasoning is that the firm is registered in an optical stakeholder, is developing a cooperative culture that enhances the many existing interactions between employees, fostering collaboration between them and effective mutual control, which are all factors that revolve around productivity and contribute to the improvement [Blasi et al, (2010)]. The strong impact on employees' productivity is also due to the better flow of information that this device supports. Indeed, companies with employee ownership adopt a more transparent communication of information that is voluntarily submitted to markets to the benefit of all investors [Bova et al, (2012)]. Similarly, Ginglinger et al, (2011), by conducting a survey of 402 US companies, were able to observe that a 5% hold a positive capital impact attitudes and behaviors of employees by reducing the likelihood of 15% strike; a decrease that is enhanced by the presence of employee directors. Good numbers of studies, despite the dispersion of their numbers, support these results and quantify these productivity gains associated with employee ownership. These include that of Blasi, (1996); this author found that there is an average difference of 6.2% productivity among small US companies that have an ESOP and those that do not. Kruse (2002) believes that this gap to 4.4% in US companies is due to the adoption of the plan and 6.6% difference in productivity between companies with plans and those without ones. Blasi et al, (2010), for their part, consider, having taken into account the selection bias, a productivity increase of 4.5%. Although there are differences in the results, all these studies are consistent with a positive correlation between employee ownership and productivity in small structures. The underlying reasoning is that this device limits the behavior of "stowaway". These studies consolidate those Desbrières, (2002); Oyer and Schaefer of, (2004); Pendleton (2006) and Sesil et al, (2007) and Blasi et al, (2010) providing that the

larger the size of the enterprise is, the greater the behaviors abandonment of stowaways are.

Employee ownership: catalysis enhancing financial profitability

Many studies have used a variety of fairly wide performance indicators and compared them with the financial profitability of companies, having implemented employee ownership plans. The results they have found provide that corporate profitability has implemented an employee ownership higher than not having implemented [Conte and Tannenbaum (1978), Wagner and Rosen (1985) and D' Arcimoles Brillet, (2000)]. The study by Park and Song (1995) testifies to these results. Indeed, these authors observed an improvement in the performance of firms equipped ESOP measured by economic profitability (ROA) and Tobin'Q, during the three years following the establishment of the ESOP and in the presence of large external shareholders. Dondi (1992), concluded that the positive effect of employee ownership on financial returns for a small shareholding by employees, or 10% of capital held by employees, beyond and below, whereof the financial profitability change variation. D' Arcimoles and Trébucq, (2003); Faleye et al, (2006) and Kim and Paige, (2011), on their part, have stressed that significant levels of employee ownership (above 5%), companies consistently underperformed. The massive and widespread dissemination of employee ownership keeps away, within the meaning of these authors, employees of the goal of maximizing shareholder value, and is far from being an effective way to align the interests of shareholders with those of employees. These results consolidate those of Ginglinger et al, (2011) which, on a sample of SBF120 companies, showed an improvement in the financial performance for a lower holding 3% over a period that stretches from 1998 to 2008, while it is negative for a greater than 10% holding.

With regard to these developments, we need only assume a positive effect of employee ownership on the financial performance of the company. Thus, we attempt in the following to test the previous research hypotheses more rigorously:

Hypothesis 1: The employee share measured by the percentage of shares held by employees is positively associated with the financial performance of companies.

2.2. The impact of performance on the employee ownership

Theoretical developments recommended in this paragraph are intended to understand the conditions and even the determinants of the presence and development of the practice of employee ownership. From the outset, we admit that there is a high tendency to the development of this device and subscription of shares in successful companies. We issue then the following research hypothesis:

Hypothesis 2: The performance has a positive impact on the development of the practice of employee ownership.

2.2.1. Development Trend of employee ownership in successful companies

Employee ownership, with all the benefits it offers to employees and companies, is widely used successfully in the performing companies [Wang et al, (2009)]. Indeed, the performance is an indicator of good management and good corporate financial health. Thus, a company that produces a good performance can easily open its capital to its employees who will themselves be encouraged to invest [Bergman and Jenter, (2007)]. Conversely, we assume that a company making poor performance is less likely to transfer ownership of its capital to the latter. Many variables are presented as performance indicators and justify the presence and development of the practice known. The size of the business is one. Indeed, many reports on employee savings and many surveys show the uneven distribution of employee ownership is the fact of large companies. As for SMEs with fewer than 50 employees, with the exception of certain innovative companies with high growth, they remain outside the movement and practice only one of two basic forms of employee savings very marginally: participation, for which they escape any legal obligation and sharing.

Recently, according to the latest survey Opinion Way, 2012, nearly three-quarters of SMEs growing remained independent of this practice to 100%. This is explained by the reluctance of the latter to open their capital and by manifesting some suspicion with regard to outside investors. This unequal distribution of the employee ownership is explained, first of all, by the fact that this practice raises first employee savings policy that is in place in the company. But SMEs are not publicly traded. They are in a difficult form said savings. Then, according to the study by INSEE, employee savings are strongly linked to high wage rate and require a condition of seniority. Based on this observation, we

recognize that employees of SMEs are not, most of them, beneficiaries of employee savings schemes. This is explained first by mobility and precarious workers in SMEs. Then, the savings capacity of those employees is often limited, and even when positive, tends to favor savings liquid and secure care. Taking into account the size effect is essential to identify the nature of the link between company performance and employee ownership. Therefore, the following research hypothesis is:

Hypothesis 2, a: The firm size is positively associated with employee ownership

A higher trend for subscription of shares in successful companies:

Purchase of securities that generate arbitrage, whose choices determinants are risk and stock market prospects of their business, are established by employees.

The risk: determinant of choice of subscription:

The practice of employee ownership, although it is obvious that has undeniable assets, represents an opportunity enjoyed by the employee shareholder; it is nonetheless fraught with risks for the latter. The savings invested by employees fluctuate with the business results and the discretion of the share price if the company is listed. By doing so, a communication error or a bad market appreciation can lower the share price of the listed company significantly and thereby devalue the savings of employees without this impoverishment being commensurate with their work in the company. Thus, employees, underestimating the risk attached to the shares of their business and investing in shares in the same company, will acquire securities of the latter if its market performance is good, i.e., if the course is high [Benartzi et al, (2007) and Blasi et al, (2010)]. However, in times of economic insecurity, employees are reluctant to purchase of securities of their company and show a strong preference for a fixed compensation, reflecting their strong aversion vis-à-vis risk [Blasi et al, (2010)]. Employee ownership introduced then a considerable financial risk and non-diversifiable in compensation of employees: the risk of losing their jobs and the risk of losing their heritage [Maalej and Triki, (2008)]. The risk of double losses may explain the reluctance expressed by the employees to the development of this practice. In this perspective, we plan to test the following hypothesis:

H2, b: Employee ownership is negatively associated with risk.

Policy action variable dividends for subscription:

The decision to purchase of securities by employees raises questions on income they get following their subscription. Thus, they require that a signal be launched at this information to be conveyed on the financial health of the company. They do this by excessive extrapolation of profitability. That is to say, they consider past profitability of the shares of their company as representative of future performance [Aubert, (2005)]. They also have a real need for a guarantee to be protected against unfair acts that can be committed against them by their deviant behavior of certain players. The dividend policy meets the expectations of employees, given that the meaning of Dog et al, (2005); Angelo et al, (2006); Denis and Osobov, (2008) and more recently Albouy et al, (2010), one of the key financial variables that allows on the one hand to reduce information asymmetry in financial markets by providing investors with the ability to significantly reassess the companies in question securities and have a clear vision on the future benefits they expect it. On the other hand, the dividend policy allows controlling the behavior of actors, forcing them to justify the capital amounts used and to limit the waste of resources, in case of new projects financing [La Porta et al, (2000)]. This makes the dividend a determining variable of decisive choices to subscribe for employee share plans, so we hypothesize to test this:

H2, c: employee ownership is positively related to a high rate of dividend distribution.

3. Model specification and estimation methodology

The methodology adopted in the context of this article specifies the model used and operationalize the variables (2.1), to present the various tests and statistics tools we used in (2.2) and interpret the empirical results obtained and the interpretations thereof (2.3).

3.1. Model and retained variables

Our goal is to empirically validate the assumptions while trying to test the link between performance indicators and employee ownership. To do so, the model that we suggest is written as follows:

$$\boldsymbol{Y_{it} = \alpha i\ (X_{it}) + \beta i(Z_{it}) + \varepsilon_t}$$

Where:

$\boldsymbol{Y_{it}}$: Matrix of endogenous variables measuring the performance of sample firms. In our specification, we note:

The return on assets (ROA): measure of economic profitability. It is also the ratio of net income and total assets.

Return on equity (ROE): measure of financial profitability. It is the ratio between the net income and equity.

Stakeholder value (PV): measured by the value added that corresponds to the difference between output and intermediate consumption.

$\boldsymbol{X_{it}}$: Matrix or exogenous variables. Employee share (SHEQ) is the predictor of the performance of retaining businesses. It's a datum in our specification quantified measured by the percentage of shares held by employees.

To better understand the weight of employee ownership in the model, we used the return variable in dividends and the risk (beta), which measures the sensitivity of the security relative to market changes and those to better specify the model.

$\boldsymbol{Z_{it}}$: Matrix of control variables that are key determinants of business performance [On Arcimoles and Trébucq, (2003); Hu and Zhou (2008); Margaritis and Psillaki, (2010)].

They contain:

- **The company's size** measured by the logarithms of total assets and total number of employees
- **The debt** equals to the ratio between long-term liabilities and total assets.
- **The solvency ratio** equals to the ratio between short-term and short-term liabilities assets

$\boldsymbol{\varepsilon_t}$: The random perturbations which are uncorrelated with the independent variables.

3.2. Method of estimation

To test the relationship between employee ownership and performance, we use econometric panel data. The advantage of this type of data is that it will allow us to realize not only the dynamics of behavior, but also for possible heterogeneity. By doing so, the data used in our study cover 108 French SBF120 companies, of which 70 are service companies (transport, health, insurance) and the remaining 41 include industrial ones, over a period that stretches from 2000 to 2012, 1 404 comments retrieved from the database "Thomson One".

- *Homogeneity Test*

The first step to establish a panel data sample is to verify the homogeneous or heterogeneous specification of the data generating process [Sevestre, (2002)]. Basically, the coefficients of the model should be tested in their individual dimension. Economically, the test specification is intended to check whether the theoretical model studied, which seems exactly the same for all individuals, or conversely it has the same characteristics of the underlying variables.

In general, the theoretical model by which we will test the homogeneity is written as follows:

$$\boldsymbol{Y_{it} = \alpha_i + \beta_i' X_{i,t} + \varepsilon_{i,t}}$$

With αi: the individual effect; *βi = (β1i, β2i ....βki*) is a vector of dimension (1, k) and Xit = (*X1i, X2i ..... .Xki*): the vector of explanatory variables with K = 1 ..... n. The ε corresponds to the innovations (i,t), which are assumed to be identical with zero average and variance equal to σ_ε^2 for all i.

The homogeneity test procedure includes work under Hurlin (2002), three stages; the first is to test the hypothesis of a perfectly homogeneous structure. In other words, it is checked if the constants and coefficients are the same and through the establishment of Fisher statistic with (K+1) (N-1) and NT-N (K+1) degree of freedom:

$$H_0^1: \alpha_i = \alpha \; et \; \beta_{\,i} = \beta$$
$$H_1^1 = \alpha_i \neq \alpha \; ou \; \beta_i \neq \beta$$

In the second step, we check whether the K vecteurs *βi* components are equal or not for all individuals, using the Fisher statistic with K (N-1) and NT-N (K + 1) degree of freedom:

$$H_0^2: \beta_i = \beta$$
$$H_1^2: \beta_i \neq \beta$$

In the third, we have to test the presence of individual effect *αi,* using the Hausman test.

- Hausman test

The Hausman specification test (1979) is applied to the test specification problems of the individual effects in a panel. The interest stems from its implementation is the discrimination of fixed and random effects [Hurlin, (2002)]. The hypothesis tested carries the meaning of this author on the correlation of the individual effects and the explanatory variables:

$H_0: E(\alpha_i \backslash X_i) = 0$
$H_1: E(\alpha_i \backslash X_i) \neq 0$

Under H_0, the model can be specified with random individual effects. The estimator retained will be in this case the MCG or called (BLUE Estimator). Under the alternative hypothesis, it is the individual fixed effects that specify the model and request that Within Estimator should be put in place (unbiased estimator).

The Hausman test statistic is applied to the test specification of the individual effects is as follows:

$H= (\beta_1 - \beta_2)\ [var(\beta_1 - \beta_2)]^{-1}(\beta_1 - \beta_2)$

Under the null hypothesis, the H statistic follows asymptotically a chi-K degree of freedom.

3.3. Results and interpretations

- Homogeneity test

The results show that the constants and coefficients are heterogeneous. Fisher statistics calculated for our sample are greater than the Fisher statistic tabulated at the 5% threshold. We, therefore, reject the null hypothesis of homogeneity of the individual effect.

Table 1: Test of homogeneity

	Homogeneity of constants	**Homogeneity of coefficients**
ROA	F(9,1323) = 6.47(0.0000)	F(110, 1323) = 1.31
ROE	F(9,1323) = 14.85 (0.0000)	(0.0209)
Stakeholder value	F(9,1323) = 2.33 (0.0132)	F(110, 1323) = 2.10
Employee		(0.0000)
ownership ROA	F(9,1323)= 195.95	F(110, 1323) = 0.85 (0.8589)
ROE	(0.0000)	
Stakeholder value	F(9,1323) = 196.32	F(110, 1323) = 17.57
	(0.0000)	(0.0000)
	F(9,1323)= 197.23	F(110, 1323)=
	(0.0000)	17.61(0.0000)
		F(110, 1323) = 17.69
		(0.0000)

- Test of Hausman

To specify this effect, we use Hausman test (1979). The aim is to verify the existence of a fixed individual effect or random effect. Under the null hypothesis, the Hausman statistic follows a chi-square degree of freedom equal to the number of coefficients. Thus, under the null hypothesis, the theoretical model can be specified with random individual effects and we must therefore retain the estimator GCM (the BLUE estimator). Under the alternative hypothesis, the model must be specified with fixed individual effects and we must retain LSDV Within estimator (the unbiased estimator). Table 2 summarizes the Hausman test for the two models below mentioned.

Table 2: Test of Hausman

	ROA	**ROE**	**Stakeholder value**	**Employee ownership**		
				ROA	**ROE**	**V P**
Stat-Hausman	Chi2(9)= 135.09	Chi2(9)= 146.72	Chi2(9)= 35.39	Chi2(9)= 18.07	Chi2(9)= 17.83	Chi2(9)= 18.50
P-value	0.0000	0.0000	0.0001	0.0344	0.0372	0.0298

According to the estimation results, we note that all models are subject to a fixed effect.

3.4 Panel data estimated without commitment

The estimate in the context of our model is conditioned upon the identification criteria of the model. The results show that our model is well identified. In this case, the appropriate estimation method is the least squares.

Table 3: Results of estimation

Variables	Sign		
	Performance		Employee ownership
	Shareholder	Partnership	
Employee ownership	+	+	
Performance			+
Log total assets	+	-	+
Solvency ratio	+	+	-
Debt	+	+	-
Size	-	+	-
Risk	+	-	+
Dividend	+	-	+

The results of the estimation of our model, shown in Table 4, indicate a positive effect on employee share respectively (ROA and ROE), regardless of the percentage of capital held by employees. The hypothesis (H1) is confirmed. Also, these results show the absence of a threshold effect in the relationship between the two presuppositions which corroborate the results generated by Dondi (1992) and Guedri and Hollandts, (2008). The results show, at the same time, the decisive influence of shareholder performance with two indicators (ROA and ROE) and partnership performance on the employee ownership. This result that reinforces the idea of a strong and positive association between this practice and a high level of performance can be explained by the fact that a company having achieved a good performance will be promoted by virtue of its financial situation and return on capital, to open its capital and employees, optimistic about their company's past performance, there will be enticed to buy securities. This result is one of Bergman and Jenter (2007) showing that it is the past performance of the company that brings

employees to purchase shares of their company. Conversely, we assume that a company whose performance is poor will struggle to encourage employees to invest in shares of the latter. The H2 is confirmed.

Table 3 shows that the variable size displays a sign contrary to expectations, H2 hypothesis was that employee ownership is more common in large companies is not confirmed. Our results consolidate the observations of Desbrières (2002); Kruse (2002); Oyer (2004); Pendleton (2006); Sesil et al (2007) and Blasi et al (2010), which provide that employee share ownership, under the assumption 1 / N, would be more effective in smaller structures. The underlying reasoning is that the higher the size of the company is, the greater abandonment the behaviors of stowaways are.

The results show the positive influence of dividend policy on the presence and development of the practice of employee ownership. The resulting positive relationship can be explained by two arguments because of the requirements of agency theory. First, the payment of dividends would limit the waste of resources through the effective control of managerial guidance it internalizes in them, forced to justify the amounts of capital used in case of new projects financing. Second, it allows the flexibility for investors to significantly reassess the companies in question securities and have a clear vision on the future benefits they expect. This result confirms the findings from the literature review examined on the role of this variable on employee shareholding operations. Hypothesis 2 is confirmed.

Furthermore, we anticipated a negative relationship between risk and employee share practice. The sign obtained for this variable that measures the sensitivity of the title to market changes (Beta) is contrary to our expectations. Hypothesis 2 is not confirmed, since employee ownership is positively associated with risk. This result can be explained by the fact that companies in our sample have a stable form of employee ownership and have succeeded in structuring employee shareholding so as to reconcile liquidity and stability which is consistent with the study of Sesil et al (2006); Brown et al (2006) and Maalej and Triki (2008), who observed that the risk is lower in companies with established employee share ownership and that these companies are less exposed to the risk of bankruptcy.

After estimating the model, our objective goes beyond the simple sketch of the sign correlation between employee ownership and performance, but rather to wonder about

the existence of a possible causality between so-called pre-suppositions. Thereby, we will proceed to what follows the causality tests agreed.

4. Short and Long Term causality Test

We will try in what follows to test the short-term causality (CT) and the long term one (LT) between employee ownership (SHEQ) and performance measured by (ROE) and (ROA).

4.1. Short term causality Test (CT)

Granger (1969) defines causality between two variables as follows: we say that the variable Y is the cause of the predictability of X if X is improved when all the information for Y is considered. Thus, a variable Y brings about a variable X if the past can improve the prediction of the value X given the past of Y.

According to the released results, we can confirm:

Bidirectional causality between employee share (SHEQ) and the variable measuring financial profitability (ROE) is rejected. In the short term, employee ownership does not cause the financial profitability, and this profitability does not favor short-term employees the choice to hold the company's securities.

The absence of causal link is justified by the fact that the capital used by enterprises need the time to be invested wisely and in high return projects (selective). Thus the business or optimization of the company's capital is not immediate, for it encourages employees to hold its securities. Furthermore, the (ONE) may reflect the effectiveness of the use of the equity of the company and learn about the policy and the company financing arrangements that will be assessed by the employees before their decision to acquire the titles thereof.

They should ensure indeed:

- Diversification of the company's financing means to avoid the risk of bankruptcy.
- The cost of financing that should be minimized through diversification.
- The credibility of the company to the various donors for the continuity of funding.
- The company's financial health: is it undermined by the payment of arrears if they exist.
- The increase in the profitability prospects is possible with a far-sighted and strategic vision of the company's decision makers with respect to confront the constraints and assets available to the company.

Therefore, it is not so easy an employee can have all this information to a short-term horizon in order to acquire shares and become shareholders. This legitimizes the lack of

causality between (SHEQ) and (ROE). Also there is a short-term lack of causality between economic profitability (ROA) and employee share (SHEQ). The economic profitability that provides information on the company's ability to generate net income using all of its resources may in the distant horizon (not short term) positively impact the selection of employees to participate in the capital of the company through the holding of securities.

We concluded a lack of short-term causality between the performance indicators and the index of employee ownership. This result is consistent with most theoretical assumptions confirming a positive link but not short-term causal relationship between these two presupposed. It is therefore necessary to verify the existence of long-term causal relationship between employee ownership and corporate performance.

4.2. Long term Causality between Employee Ownership and Performance Measures

To test the long-term causality, we adopt the method of Johanson and Juselius (1988). This method is based on estimating the following error correction equation known (MCE) to highlight a long period of co-integrating relationship. Finally, it allows through a test called "low exogeneity" detecting the direction of causality (LT).

$$\textbf{(MCE) : } \Delta Yt = \sum_{i=1}^{n} bi\ \Delta \log yt\text{-}i + \sum_{i=1}^{n} aj\ \Delta \log x\ t\text{-}j - \beta\ i\ \hat{u}1t\text{-}1 + \varepsilon 1t$$

If β (estimated) is statistically significant, we can affirm the existence of a long-term causality from Yt to Xt. In addition, the sign must be negative so that we can have an error correction mechanism.

4.2.1. Long term Causality relationship between (SHEQ) and (ROA)

According to our estimates, the long-term relationship found may be expressed as follows:

$$ROA = \underset{(-1.6)}{0.24\ SHEQ} + 0.8$$

In the long term, 24% of the increase in the variable corporate economic returns is due to the increase of one unit of the numbers of employees' shareholders. Thus a quarter of the increase (ROA) is explained by the preference of employees to hold company stock. This long-term relationship allows us to write the following error correction equation:

$$\Delta(\boldsymbol{ROA_t}) = \mathbf{0.6}\,\Delta\boldsymbol{ROA_{t-1}} \mathbf{-0.22}\Delta\boldsymbol{ROA_{t-2}} \mathbf{-0.43}\Delta\boldsymbol{SHEQ_{t-1}} + \mathbf{0.09}\Delta\boldsymbol{SHEQ_{t-2}} \mathbf{-0.82}\boldsymbol{\varepsilon_{t-1}}$$
$$\mathbf{(25.23)} \qquad \mathbf{(-7.17)} \qquad \mathbf{(-20.25)}$$

Note that in the short term, the change in the variable (ROA) depends on its previous values shifted by two periods (the coefficients are significant) but does not depend on variations of the variable (SHEQ), confirming the clear absence of short-term causality between the two variables. Furthermore, in long-term and under the combined effect of changes (ROA) and (SHEQ), one can correct 82% of the imbalance, which is consistent. A low exogeneity test will be conducted on the error term. This test is written as follows:

$$\boldsymbol{H_0}: \boldsymbol{\varepsilon_t} = \mathbf{0}$$
$$\boldsymbol{H_1}: \boldsymbol{\varepsilon_t} \neq \mathbf{0}$$

It is noted that ε (t-1) is of a negative and significant sign (| -20.55 |> 2) and the variable (ROA) is said non- weakly exogenous.

Similarly, our estimates show that the variable (SHEQ) is weakly exogenous; the one-way long-term causality is certainly:

ROA → SHEQ

First long-term direction of causality

We note, statistically, the model (R 2 = 0.63) has an acceptable goodness of fit with a strong overall significance of the model (F = 483.14: high).

This result appears to be consistent with our predictions and our theoretical assumptions. Improving the company's economic viability sends positive signals to employees: the effectiveness of the use of resources of the company and their level of optimization encourage employees to access the company's capital by securities holding.

4.2.2. Long Term Causality relationship between (SHEQ) and (ROE)

The long-term relationship between the released employee ownership and financial profitability measuring performance in our modeling is as follows:

ROE = 1.54 + 0.23 SHEQ

(-2.5)

It raises a positive and significant relationship between long-term employee ownership and financial performance. Indeed employee ownership helps to increase return on equity of the company to 154% which is very significant. The detention of the capital shares of companies on the part of employees positively affects the profitability of the funds made available to companies, allowing them to generate significant bottom-line results. The long-term positive correlation between (SHEQ) and (ROE) is consistent with our theoretical findings confirming the positive sign that binds these two presupposed.
The existence of this long-term relationship allows writing and interpreting the error correction model presented as follows:

$$\Delta(\boldsymbol{ROE_t}) = \underset{(-5.-3)}{-0.06\,\Delta ROE_{t-1}} \underset{(-1.48)}{-0.01\Delta ROE_{t-2}} \underset{(-18.24)}{-1.63\Delta SHEQ_{t-1} - 0.93\Delta \mathrm{SHEQ}_{t-2}} -0.55\varepsilon_{t-2}$$

According to the estimated equation above, the financial profitability does not depend in the short term on its lagged values of two periods or values delayed by two periods of employee ownership.
The coefficients found are not significant in the short term, which means that the imbalance of the variable (ROE) in the short term cannot be corrected by the change in employee ownership. This result reinforces the finding of lack of causality between the SHEQ and short-term ROE. A low exogeneity test on the error term allows viewing the long-term dynamics between the variables of the model.

$$\begin{cases} \boldsymbol{H_0}: \boldsymbol{\varepsilon_t = 0} \\ \boldsymbol{H_1}: \boldsymbol{\varepsilon_t \neq 0} \end{cases}$$

The error term is of a negative sign and is highly significant (-0.55) and (| -18.28 |> 2), which implies the existence of an error correction mechanism to restore the changes in the endogenous variable (ROE) to its equilibrium level. Thus, long-term and in the combination of SHEQ and variable values of the endogenous variable (ROE) itself can be corrected 55% of imbalance. The ROE variable is said to be non-weakly exogenous when, according to our estimates, the ES variable is weakly exogenous, so we can deduce the following long-term causal relationship:

ROE →SHEQ

One-way long-term causality

One direction of causality is clear from long-term financial return to employee ownership. Thus, the high return on capital can motivate and encourage employees to take part in capital and become shareholders. As the economic profitability, financial performances achieved by companies in the sample cause and influence the decisions of the employee to hold share capital: these two indicators, if they are at high levels, send positive signals when the sustainability businesses and the present of the company ensure its future performance and survival. An employee shareholder ensuring the ability of the company to confront the various constraints, and the profit (dividend) that can be charged on its holding of securities will continually grow will not hesitate to become a shareholder of the business.

5. Conclusion

In this contribution, we wished to empirically examine the effects of employee ownership on performance of French companies and vice-versa. Our results reveal a positive and statistically significant effect between the two variables of interest. Furthermore, our results show that there is a positive impact of financial and economic performance achieved by these companies on the preference of employees to hold share capital through the acquisition of securities. Our findings also suggest a long-run unidirectional causal relationship from financial variables to employee ownership, while the reverse causality is not verified. The lack of two-way causal relationship and specifically of causality from the employee ownership to the performance indicators included can be checked in future researches and especially when employees becoming shareholders of the company will be more confident and reassure the financial, economic and organizational perspectives of the company in which they own a stake. These findings appear of utmost importance in terms of policies and business strategies.

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