

The Relationship between Employee Stock Ownership and Weighted Average Cost of Capital: The Case of the SBF 120

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Abstract

This research examines the relationship between employee stock ownership (ESO) and the weighted average cost of capital (WACC). The thesis analyzes the conflict between internal and external stakeholders, which is represented through a company's stock price assuming an efficient market. Therefore, the study uses the WACC not only as a measure of financing cost but also as a measure of investment risk. In an efficient market, the ESO will reduce stakeholders' conflict, which is represented through a lower WACC. *We hypothesize that a higher percentage of shares held by employees cause a lower WACC* is confirmed through a quantitative fixed effect panel regression model with the case of the Société des Bourses Françaises (SBF) 120 index.

Keywords: Employee ownership, corporate governance, weighted average cost of capital, agency theory.

JEL: J33, J54, J63, L74, L85, M52

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1. Introduction

This component of the study gives a brief overview and introduction of the subject of this research. In France, a corporation is built through the contractual agreement of at least two participants to conduct business according to the French civil code. However, in reality numerous participants are involved in business activities such as executives, managers, employees, suppliers; as well as others from the company's environment such as state and local communities. These contributors are summarized under the term "stakeholders," which indicates the existence of a complex business environment compared to the simplified legal explanation.

This section defines the research area in order to develop the further examination. The general research field is management since the academic research analyzes and evaluates the ESO which can be considered as a management tool that can increase employee motivation, productivity, and satisfaction. More precisely, the research focuses on the ESO and its relationship to the WACC, a financial determinant for financing cost, and as such a measure for the investment risk. Therefore, ESO is generally examined in this chapter and broadly linked to the WACC. In the further research this connection is accurately interrelated through agency theory.

The research focuses and analyzes the conflict between internal and external stakeholders through agency theory. Assuming an efficient market, the ESO will reduce stakeholders' conflict, which is represented through a lower WACC, because of less risk of miscommunication between a firm's stakeholders. The company's stock price represents a way to measure productivity and risk. Therefore, the research uses the WACC not only as a measure of financing cost but also as a measure of investment risk, and its aim is to use this link to determine in which way ESO affects the financing risk of a company.

In order to answer the main research question "*Can Employee Stock Ownership decrease the Weighted Average Cost of Capital?*" and to test the relationship between ESO and the WACC, the following hypothesis is developed in the process of this research: "*A higher percentage of shares held by employees cause a lower WACC*". This hypothesis is tested quantitatively using a comprehensive sample of the companies included in the French Société des Bourses Françaises 120 (SBF120) index. The results demonstrate strong evidence for a relationship between the ESO and WACC, consequently providing evidence for managers and politicians to use ESO as a successful governance and management tool.

Using the case of France as a geographical location to research the ESO phenomenon is ideal because its broad stock index the SBF120, has several important firms in the field with ESO listed in its index. Further, France is Europe's leader in ESO and the fields of ESOP *inter aliter* due to several incentive tax packages (*Annual Economic Survey of Employee Share Ownership*, 2009). Our empirical research demonstrates a relationship between ESO in France and the WACC. This is a topic of great relevance, especially during times of crisis such as the 2011 "Eurocrisis", since ESO has the ability to decrease shareholder risk and facilitate communication within an organization in order to develop competitive advantage in an industry, thus leading to stable long-term performance. This increases investor trust and so creates a circle of mutual stakeholder benefit. Previously, Barney (1990) researched ESO and its relationship to the firm's cost of equity. However, his research was limited to one industry (electronics), his sample size was very limited, and his study was geographically limited to Japan. Moreover, the research only included major organizations. Based on Barney's research (1990), the research expands the results according to a primary research strategy. This paper overcomes these obstacles through the utilization of a wider and more comprehensive database using the financial data for the SBF120 from the Bloomberg Database and matching it with the corporate governance data for the same companies from Insead OEE Data Services (IODS) DataCG – Base de données sur la gouvernance d'entreprise. Therefore, the research relies on a comprehensive dataset with a big sample size that spans all 120 SBF firms – virtually an umbrella of almost all French industry sectors.

The data are analyzed through the statistical means of panel data analysis, a comprehensive econometric research technique that is able to capture relationships over time throughout a set of companies. Furthermore, the French ESO system is highly developed, therefore the percentage of ESO is higher than in any other country as more precisely demonstrated in the following chapters (Waxin, 2011). Barney (1990) demonstrated the need to widen this field of research and knowledge, therefore the case of France gives an enhanced knowledge base for researchers. Cross national conclusions can be drawn through a comparison of the results with previous studies. Moreover, in the academic literature France is often mentioned as a hybrid form of governance when it comes to the corporate board structure. It could be unitary (like in the US) or two tier (like in Germany). Companies have the choice between these two systems in France, making it the ideal case to study the different forms of ESO.

To conclude, relationships are drawn and results are critically demonstrated, as well as compared to the results found in Barney's (1990) study concerning electronic firms in Japan. Re-

sults will help political decision-makers and managers to develop sustainable long-term corporate and economic growth and success.

This section summarizes the broad research steps. Primary research will involve the analysis of the statistical data. Secondary research involves an analysis and summary of the academic background of corporate governance, ESO, ESOP, agency theory, and the WACC. Finally, the thesis develops a theoretical model in which relationships can be drawn between ESO and WACC as a measure of risk.

Therefore, the thesis is structured as follows: Section 2 analyses the academic literature about employee participation, agency theory and the WACC. Section 3 examines the corporate governance data and financial data of the SBF120, develops the research methodology and the theoretical model with the research hypothesis. The following section 4 carries out the econometric analysis and interprets its results. In section 5 we conduct robustness checks to confirm our regression model and section 6 discusses the findings, before we determine the particular applicability of this research and conclusions are drawn in section 7.

2. Literature Review

In this section the role of employee participation and its relationship to the WACC in the academic literature is examined to develop the research's hypothesis and to build a foundation for the primary research. More precisely, this chapter conducts an in-depth academic literature review, in which ESO is defined, and its disadvantages and advantages are discussed; and the WACC is defined and its functioning and importance are demonstrated.

In order to fully understand this corporate governance matter, chapter II is structured in the following manner: firstly it examines what shared capitalism and ESO are, positions them in a historical and European environment before providing the specifics for France. Then, their negative aspects "the dark side" as presented in the literature are demonstrated. Next, the "bright side" –or benefits– of employee participation are revealed. The agency theory and stakeholder theory are examined after ESO, since they relate, the WACC to ESO. Based on the literature review, the theoretical framework and respective research hypotheses are developed.

ESO is characterized as an investment strategy which primarily focuses on giving out shares of the company to the employee who is working for it (Kaarsemaker, 2006). Those compensation plans are often used as a corporate finance and management strategy, which should match the company's interests with employees' and shareholders' interests through the reduction of

agency risk (described below). Moreover, such ESO systems encourage the company and its shareholders through a range of tax incentives or benefits, since those systems profit financially the organization and its stakeholders.

This research focuses on France. In France, there are five main forms of ESO according to Waxin (2011). Firstly, direct employee ownership is characterized by employees buying shares of the company he or she is working for at any given time at the given market price shares. Secondly, there is indirect stock ownership – called “Fonds Commun de Placement d’Entreprise” (FCPE) – which is more complex and represents collective ownership of the company’s shares by the employees. However, this common enterprise placement fund is a tool to motivate employees to participate in ESOP, thus it is usually held for a certain period of time and holds only shares that are reserved for employees. Thirdly, these companies can also give out free stocks or free options to their employees as seen in the Silicon Valley case we described earlier. Fourthly, the corporation has the option to give out the shares with a discount under their market value. Therefore, the most popular method is to link the price to the length of time the shares will be held: if the shares are held for five years, the discount is 20% of the market value; or if kept for ten years, up to 30%. Fifthly, basically combines the first four methods. Nonetheless, the most common way of implementing ESO in French corporations is through FCPE plans.

Agency theory is the key to understanding the relationship between the numerous participants in and around a business. It is the linking puzzle piece between ESO and WACC. This chapter researches in-depth the issue and develops this bridging relation. The core of agency theory is the relationship between stakeholders who engage in different functions resulting in different benefits. This relationship was defined as “a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent” (Jensen and Meckling, 1976). The concept has been adopted and implemented in the subsequent academic literature. For example, Eisenhardt (1989) related the topic to organizational behavior, organizational management, and management strategy; while Barney (1990) studied the relationship between ESO, debt, and cost of equity. In 1976 Jensen and Meckling argued that there are more relationships within an organization to which agency theory can be applied. Thus, agency theory was expanded and developed by Hill and Jones (1992), creating a relationship not only between managers and stockholders, but expanding it to the corporation’s stakeholders.

The core concept of agency theory is that the interests of agent and principal might differ, and that asymmetric information because of missing understanding of a principle and an agent's knowledge cannot ensure that the agent is performing in its principal's interest, which will create efficiency losses and costs (Tirole, 2006). To minimize the divergence, the principal can establish incentives for the agent, which will limit his/her opportunistic behavior that would have caused monitoring costs. Moreover, certain incentive schemes can be developed to limit activities which can hurt the principal; therefore, the principle has to pay the bonding cost. However, these actions reduce the capital of the principal; hence, they can be called a *residual loss* for the firm and the principal.(Hill and Jones, 1992) Consequently, the agency theory develops an agency cost, which has negative impact on the WACC. This relationship is described in the following chapter. Agency cost is defined as the sum of the agent's monitoring cost, bonding expenditure, and residual loss. Also, agency theory is linked to the natural selection process, which favors a governance structure that economizes agency costs. This can be achieved, for example, through contracts that can be explicit and implicit between the agent and the principle, through governing bodies such as the board of directors, and through enforcement mechanisms such as corporate control and labor market regulation (Fama and Jensen, 1983). Moreover, Jensen and Meckling (1976) argue that employees might have several goals in their corporation. Individual interests, like personal promotions, are an example, and these can cause distracting dilution, which results in a loss of the employees' focus on wealth through stocks. This causes conflict with the stakeholders, creating an agency risk that could lead to the development of an agency cost – the cost to reduce the risk. Therefore, Jensen and Meckling (1976) explain the casual relationship between agency risk and agency cost. These agency risk prevention or reduction costs can be separated into three categories. The primary expenditure is the “monitoring cost”. Then, there is the secondary cost for “bonding”. The “residual” agency cost is the third expense. The first two costs, monitoring and bonding, are capable of reducing the third; however, it is impossible to decrease the residual cost completely. Thus, this makes it more risky and more expensive to invest in such a company, as the WACC will be negatively affected, meaning the WACC will increase. Hence, if employee ownership is able to diminish the agency cost and agency risk, the decrease in cost is represented in a lower WACC. This research utilizes the WACC as a measure for the firms' corporate governance actions, namely ESO practices. The table 3 below demonstrates the effects of ESO on the WACC.

Table 1: Effect of ESO on WACC

ESO	WACC
Increases free rider problem	Increase
Increases management entrenchment	Increase
Lowers conflicts	Decrease
Motivates employees	Decrease
Decrease take-over threat	Decrease
Tax-incentives	Decrease
Long-term relationship with employees	Decrease

Barney (1990) argues that the ESO system is able to reduce the agency cost since it is the binding link between the interests of investors and employees. The actions, which the employee takes, will positively impact outside stockholders' wealth. These decisions and achievements by employees might be different than the expectations of the owner; nonetheless, they target the same intention. The more developed an ESOP is, as more employees hold shares of their company, and as the number of shares each employee holds grows, the more employees' wealth depends on the value of the firm. Thus, the employees' objective is an increasing stock price, and so they seek to lower the agency risk, which will be represented through a lower WACC. Nonetheless, Guedri and Hollandts (2008) argue that ESO has an inverted U-shape relationship to company performance. This means that the productivity increases only up to a certain point before it leads to a decrease of performance, which will at the same time impact the corporation's WACC. Management has to therefore find the right balance of ESO.

3. Data and methodology

In this section, the research demonstrates the data and the methodology, which is used to analyze the effects of ESO to the WACC.

Based on the academic literature studied above, this chapter develops the research hypotheses, which will be tested and verified in the following chapter IV.

Based on the literature review, the following research hypothesis was developed:

Hypothesis: A higher percentage of shares held by employees cause a lower WACC.

The study assumes that there is, based on the academic literature studied above, a causal relationship between ESO and the WACC, since a higher motivation, communication and productivity would decrease the agency risk and cost what will be reflected in a lower WACC, since the WACC reflects the refinancing and interest cost of a firm. Those costs should be lower when the company is more productive and less risky. The hypothesis is tested through a panel data regression. The details of the variables and the regression are explained in the next chapter.

3.1. Sample

The sample of the research is developed through Insead OEE Data Services (IODS) DataCG – “Base de données sur la gouvernance d’entreprise” (Corporate Governance Database) using the SBF 120 Index to gather governance data, and through Bloomberg to collect financial data. The sample includes 115 unique companies covering 1111 company years over a period from 2000 until 2011. The research uses the biggest French corporation, since the SBF 120 covers the 120 largest firms by market capitalization and by trading volume of the Euronext Paris. The dataset excludes the GICS 40 financial firms, since those companies, banks, funds, insurances, etc. and their employees have different ownership patterns compared to the other GICSs, since the employees in this industry is constantly exposed to financial matters, therefore these employees have a high tendency to behave differently to ESO.

3.2. Variables’ definition

The dependent variable is the WACC. The main independent variable of interest is ESO for employees, which financially benefit from their shares. Therefore, “Actionnariat_salarié_capital (ASC) is the percentage of shares held by employees who are entitled to access capital. Furthermore a dummy variable is created, which demonstrates if a firm has ESO with ASC or not.

Moreover a series of nine control variables is created. The first set of five variables checks for corporate governance structures²:

(1) DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives.

² See Appendix 1 for a table, which lists the variables.

(2) SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee;

(3) PAS represents the percentages of employee shareholders represented in the board;

(4) Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights.

(5) Any_ASC is a dummy variable which shows if firms have ESO or not.

The second set of five variables checks for corporate finance effects:

(6) PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is.

(7) SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets.

(8) RETURN_ON_ASSET shows how profitable a firm is compared to its assets.

(9) TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets.

(10) TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets.

(11) Premieractionnaireen is the ratio of the biggest share owner to shares outstanding.

3.3. Methodology

The primary research methodology is based on the data from Bloomberg and DataCG, which are studied with the econometric statistical examination of panel data analysis. This econometric method is used to analyze cross sectional and time series variations including multiple economic units over multiple time periods, which is more advanced than methods which only control for cross-sectional or time series variation (Baltagi, 2008). The two methods most commonly used for panel data regressions are fixed effect and random effect models. Most important is the advantage that these models “control for time-invariant omitted variables that may bias observed relationships”(Bollen and Brand, pp. 4, 2008). The main difference between the two models is that in the random effect model the omitted time-invariant variables are expected to be not related with the included time-varying covariates (Bollen and Brand, 2008), whereas the fixed effect model permits correlations. (Mundlak, 1978) Moreover, fixed effect models allow company-specific intercepts, however slope coefficients for company and year are kept equal, which is a major benefit of fixed effect regressions (Bollen and Brand, 2008).

In order to analyze the database, an unbalanced panel regression is used. A common criticism of unbalanced panels is that results are not robust when the same variable is missing over and over again. However, the missing variables in this database are randomly distributed. Therefore, no negative effects occur. Moreover, if the research would have limited the sample to only companies which have continuous data throughout cross sections and time series, the sample size would have been to highly limited that the results would not be representative.

In our regression we further assume that endogeneity is excluded. There is no reasonable explanation in the academic literature, nor can we determine a logical relationship, that the WACC has the capability to affect ESO.

In addition, during the examination tests for multiple outliers are conducted. However, during the robustness checks it was demonstrated that the outliers don't have significant impacts on the model; hence in order to represent and duplicate better the reality, the outliers are kept in the sample.

4. Results

In this section the analysis, findings, and results of primary research methodology, which is based on the data from Bloomberg and DataCG, are discussed based on the econometric statistical examination of panel data analysis. This statistical model is applied in order to draw conclusions of cross sectional and time series variations including multiple economic units over multiple time periods. (Baltagi, 2008) . Therefore, this research chapter explains step by step the stages of the analysis and interprets the outcomes, from descriptive variable statistics to multivariate regressions. In order to estimate the regressions, the study uses the econometric software STATA, version 12.1 from Stata Corp.; the tables, figures and graphs in this chapter are the output of this econometric software.

4.1. Descriptive statistics

Firstly, we study the depended variable –WACC– descriptively. The total amount of observations is 1354. The total amount of missing variables over the period from 2000 to 2011 is 295 values. Annually, there are only between 0.34 percent and 5.76 percent of the variables missing, which is considered fairly low. The mean is 7.74 with a standard deviation of 1.93, with a minimum WACC and maximum WACC of 1.67 and 16.89, respectively.³ Appendix 2 summarizes the descriptive statistics of all variables used.

³ See for detailed Stata output tables in Appendix 4, Appendix 5, and Appendix 6

Further, a correlation matrix analysis was conducted to see correlations within the variables. However, at this stage we cannot draw final conclusion of correlations and causal relationships⁴

Based on the descriptive analysis in the next section a panel data regression is conducted and its results examined.

4.2. Regression analysis

Here the steps towards the regression model, its sensitivity and its robustness are described. Based on the fact that the database is a time series over a period from 2000 to 2011, which have cross section firm data throughout all industries listed in the SBF 120 in France (excluding only GICS 40 – the financial industry). Therefore, the form of a panel data regression is the most appropriate to use for such a set of data. Derived from the fact that several variables have randomly distributed missing values, we developed an unbalanced panel data regression. In order to assess whether to apply an unbalanced fixed effect or an unbalanced random effect panel regression, the research developed both models at first. Moreover, we determined if the fixed effect model with or without standard error is the most appropriate model, which corrects for heteroskedasticity. Since, the results are different and better for the standard error fixed effect regression model we use this model.⁵ These panel models are statistically compared through the Hausman test, the result was significant, and therefore we proved that the research cannot use the random effect model and that the unbalanced fixed effect model gives the significant outputs.⁶ Based on this defined unbalanced standard error fixed regression model, the research conducted a sensitivity analysis, to determine if outliers of ASC impact the regression. Therefore, one outlier boards can be considered at a level, at which ASC is more than 7 percent.⁷ The sensitivity test resulted in almost the same outcome. Even though the outliers are removed, the result for ASC are still significant. Hence, we decided to keep the outliers part of the sample.

Table 5: illustrates the Stata outcomes. Looking precisely at the regression model, the R square demonstrates overall a good result (0.10). Therefore, we can accept the validity of this panel. The variable of interest “asc” has a coefficient of -0.314 and the variable “any_asc” has

⁴ See for a detailed correlation analysis between the variables Appendix 3

⁵ See Appendix 13: Fixed Effect without Standard Error

⁶ See Appendix 11: Random Effect and Appendix 12: Hausman test for the results

⁷ See Appendix 14: ASC < 7

0.923. Nonetheless, the further control variables explain a relatively high proportion of WACC, too. Therefore, the hypothesis that the higher the ESO share is, the lower the WACC, has been successfully tested and proven. Therefore, we can confirm a linear decreasing relationship. Moreover, the dummy variable “any_asc” demonstrates that for firms having ESO there is a y-intercept of 0.923, at which the line starts decreasing. Looking for the percentages of ESO (asc) we can calculate the threshold at which the line starts falling.

Looking for the percentages of ESO (asc)

$$9.236 + 0.923 + (-0,314) * P(ESO)$$

$$P(ESO) \geq 0.923 / 0.314$$

$$P(ESO) \geq \mathbf{2.94}$$

Therefore, we can assume that at the threshold of 2.94 percent of shares held by employees, corporations develop an advantage which facilitates a decreasing WACC. Hence, firms which do not have an ESO level above this threshold have a higher cost of debt and equity to re-finance themselves and their projects. Concluding, we can say that firms which do not have ESO tend to have a lower WACC. However, companies, which have ESO should exceed their level above 2.94 in order to decrease their WACC, hence by every unit of increased ESO the WACC will decrease by 0.314. These results confirm that our working hypothesis is correct; consequently, firms with a high percentage of shares held by employees tend to have a lower WACC. However, firms with ESO have a bigger y-intercept; therefore their linear regression begins to fall at a higher starting-point than firms, which do not have ESO. To, conclude we could determine a threshold of 2.94 percent, meaning that on average if employees have more than 2.94 percent of shares in France the WACC decreases. This effect can have two possible explanations. On one hand, corporations may have given only a low percentage of shares to all of their employees, so they are not positively motivated, hence their motivation does not increase, and therefore there are no productivity effects which would decrease the risk and so the WACC. However, the administrative procedures of giving out shares to employees and managing the accounting actions are pricy and therefore these companies would have higher administrative cost, which would be reflected in a higher WACC. On the other hand, the shares given out to employees may have been given out only to executives and management, so that the employees do not feel an incentive and appreciation, which should lead to a particular motivation. Therefore, such an ESO system would not decrease communication issues, free rider problem, and management entrenchment which cause the agency cost and risk to remain, which is reflected in a higher WACC. To conclude the model confirmed the hypothesis, therefore we accept that the higher ESO is, the more the WACC decreases, through higher

motivation of employees which leads to higher productivity, while decreasing the agency risk; for this reason the agency cost, consequently the WACC is lower.

5. Robustness checks

Furthermore, to examine the validity of the results, we execute 8 main robustness tests, which validate the finding of the developed regression model. Firstly, a robustness test is conducted without the dummy variable “any_asc”, since the model did not have major changes and the significance of “asc” is still given, the results of the unbalanced fixed effect model with “any_asc” can be considered robust and the variable “any_asc” is able to explain more effects. These are described and analyzed in the next chapter.⁸ A second robustness test with “asc” squared is conducted; however, the new variable “asc squared” does not give significant results, so no more conclusions can be drawn through this variable.⁹ Thirdly, we examined lagged effects of the relationship between ESO and the WACC. Therefore we tested two models with lagged ASC, however one with ASC¹⁰ and one without the regular ASC¹¹. Nevertheless, there is no significant difference between the models and the base model gives us better results. Fourthly, we conducted a robustness check which excludes the crises years 2001 and 2008. The results of this regression model are almost the same.¹² Fifthly, we include the GICS 40 and realize that in our sample the financial institutions do not have a major impact to our model and the results remain almost the same again.¹³ Hence, our model is valid in times of crises and all industries, respectively. Consequently, it can be considered a general model. Sixthly, robustness check with the dependent variable “cost of debt” is performed¹⁴. The sixth robustness test with “cost of equity”¹⁵ is constructed. The cost of debt and cost of equity are part of the WACC. These tests gave good outcomes for any_asc but not for asc, since the results were not as significant as the regression model with the WACC as the dependent variable. If ESO does not affect cost of equity and cost of debt, this effect could come from the leverage. This would mean that ESO firms have less debt consistent with a pecking order theory; hence companies use ESO as an alternative source of financing. Finally, it is also tested for two further regression models the between effects model and the two-way fixed effects model. These regressions do not demonstrate significant results. To conclude about the

⁸ See Appendix 15: Robustness test without “any_asc”

⁹ See Appendix 16: Robustness test with “asc” squared

¹⁰ See Appendix 17: Robustness test lagged effects with ASC

¹¹ See Appendix 20: Robustness test lagged ASC without ASC

¹² See Appendix 19: Robustness test without years of crisis 2001 and 2008

¹³ See Appendix 20: Robustness test including GICS 40

¹⁴ See Appendix 21: Robustness test with dependent variable “cost of debt”

¹⁵ See Appendix 22: Robustness test with dependent variable “cost of equity”

significance tests and the robustness checks, the analysis confirmed the strengths and validity of the unbalanced fixed effect model and is therefore an appropriate tool to examine the effects of ESO to the WACC. The precise results are analyzed and interpreted in the next section.

6. Discussion

The research will be beneficial for a wider academic community and especially for the business practitioners because on one hand the increase of ESO leads to higher motivation of a firm's employees, they work harder and more efficiently since they will directly financially benefit from their own work. Stakeholder problem and agency risk can be reduced by better communication, facilitated through ESO. On the other hand ESO effects are reflected in a lower WACC, which means for this firm a lower cost of capital in order to realize projects. This also increases a firm's efficiency, since the firm can get easier and cheaper access to capital. Therefore, this relationship between ESO and WACC benefits the entire organization and its stakeholders. Therefore, the thesis broadens the knowledge in the field of corporate finance and corporate governance. However, further research will be required on the y-intercept of the "any_asc" variable, as we couldn't draw at this stage a final conclusion from this sample on the extent to which this intercept is influenced by the limited number of shares held by employees or by the fact that the shares are held only by the top management of a company.

Moreover, the paper found three contradictions to previous studies. First of all, looking at Markowitz's portfolio theory, the investor should spread the risk; however, Markowitz et al (2010) claim that up to 10-15 percent of ESO held in a employee's portfolio does not contradict the theory (Markowitz et al, 2010). Furthermore, Kim and Ouitmet (2010) and Ginglinger et al (2011) argue that ESO systems are only most efficient below 5 percent. Guerdi and Hollandts (2008) demonstrate an inverted u-shape of ESO to its impact on firm performance, meaning that productivity increase up to a certain level and falls after a certain level of ESO. Therefore, the WACC should first decrease and increase after the down-turn-point again. However, our study shows that in order to decrease the WACC most efficiently, more ESO is required. We found an optimal level of 2.94%; however this might be different in other countries. Therefore, further studies are required to determine the right threshold, interval area and benchmarks around the best ESO levels (Barney, 1990). A possible interpretation could be that there are differences in industry, culture, and local jurisdictions, which impact ESO and its effects on performance, as Caramelli and Briole (2007) argued. Since this study gives explanations of the impact of ESO for the particular case of France, further cross-sectional and

cross-cultural researches should be conducted. Since the beginning of the 21st century there is an increasing interest in psychology in motivation. Therefore researches have shown that there is a social motivator and a financial motivator to increase performance. These motivators contradict each other (Heyman and Ariely, 2004). Therefore, this paper bridges even to the field of motivation psychology, since the concept of ESO is capable of linking financial reward and social reward through capital gains and social appreciation respectively. To be able to draw further conclusions, studies which link ESO with motivational psychology are needed. The research determines whether management and corporate governance can make use of ESOP financing and investments to develop economic resources and exploit business opportunities while decreasing investment risk. The research aims to be useful to the wider business and management community due to the creation and exploitation of this innovative concept, which will increase employees' motivation, participation, and overall corporate performance. This model will firstly broaden the academic literature, since the literature review demonstrated the demand for in-depth research in this field, and secondly it will assist managers and politicians to support and develop France's industry through possible incentivized ESP systems within the investment concepts of employee's wealth and less expensive financing for firms. In particular, the research will offer the French community a sustainable future financial concept that could be improved. This strategy will not only be applicable to France; the model may be transferable to other countries in Europe and the world to support their industry. States that have similar economic situations to France, such as Germany or Great Britain, could adopt or improve their industry systems in such a manner. Finally, the results of the research will facilitate investments in French firms that will result in valuable improvements to different industries – and to their consumers – and therefore be of great assistance for the entire French population and its political and business partners.

7. Conclusion

To summarize, the research has examined the relationship of ESO and the WACC. Therefore, a distinctive literature review was conducted and a theoretical research model was developed in order to answer the research question: *“Can Employee Stock Ownership decrease the Weighted Average Cost of Capital?”* Our working hypothesis is that: *“A higher percentage of shares held by employees cause a lower WACC”*. Consequently, this study has shown evidence that ESO has a negative correlation to the WACC and that firms which have ESO have a threshold at 2.94 percent of employee shares, before the WACC linearly decreases. Therefore, the higher the ESO is, the lower the WACC will be. The panel data regression was tested

using the SBF 120 index. To go over the main points, ESO can mitigate the different stakeholders of a corporation. Also, the employees' motivation, participation and communication increase with a higher ESO percentage. Therefore, ESO can reduce the agency cost and risk, which is reflected in a lower WACC. As a result, we confirmed the hypothesis that an increasing ESO decreases the WACC in the case of SBF 120 in France. Moreover, we believe that further cross-sectional studies should be prepared to determine cultural specific ESO levels that have the best impact on employees' performance without exposing the employee to excessive financial risk, while decreasing the firms cost of debt and cost of equity in order to be most productive and create an optimal mutual benefit. Concluding, this study covered under an umbrella corporate governance and corporate finance issues, which are also highly discussed in motivational psychology. Hence, the research proved the hypothesis, suggesting that both employees and firms benefit from ESOP.

Appendices

Appendix 1: Regression Variables

Variable	Abreviation	Type	Definition
Weighted Average Cost of Capital	WACC	dependent	A calculation of a firm's cost of capital in which each category of capital is proportionately weighted. All capital sources - common stock, preferred stock, bonds and any other long-term debt - are included in a WACC calculation. All else equal, the WACC of a firm increases as the beta and rate of return on equity increases, as an increase in WACC notes a decrease in valuation and a higher risk. (Bloomberg, 2013)
Price to Book Ratio	PX TO BOOK RATIO	independent	The ratio of a stock's price divided by the book value per share. (Bloomberg, 2013)
Sales to Total Asset	SALES TO TOT ASSET	independent	A ratio that measures the firm's performance in managing its assets in relation to its revenues.
Return on Asset	RETURN ON ASSET	independent	Return on Assets (ROA, in percentage) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. (Bloomberg, 2013)
Debt to Asset	TOT DEBT TO TOT ASSET	Independent	A calculation to determine how much company's assets have been financed by debt.
Total Debt to	TOT DEBT TO	independent	A ratio which examines a firm's fi-

Total Equity	TOT EQUITY		financial leverage through dividing its total liabilities by stockholders' equity. It demonstrates the amount of equity and debt this firm is using to finance its assets.
Employee stock ownership (ESO)	ASC	independent	Percentage of shares held by employees.
Board type	DPA	independent	Dummy variable which is 1 if the board is two-tiered and 0 if not.
Employee board representation	PAS	independent	Percentages of employees represented in the board
Employee voting rights	Actionnariat DDV	salarie independent	Percentage of voting rights held by employees
Control of Directors	SD	independent	Dummy variable which takes 1 if firm is organized by counsel control and director, or 0 committee of administration
Control of biggest Shareholder	Premieractionnaireen	independent	Is the percentage of shares held by the biggest single shareholder to the shares outstanding

Appendix 2: Descriptive Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
WACC	1354	7.742372	1.928858	1.6665	16.8938
asc	1276	2.132492	4.096348	0	32.8284
dps	1277	.5520752	.4974756	0	1
sd	1277	.2928739	.4552594	0	1
any_asc	1416	.8347458	.3715411	0	1
pas	1277	.0145106	.0412291	0	.2727273
Actionnari~V	1159	2.661489	5.221528	0	42.339
PX_TO_BOOK~O	1250	2.626684	2.970718	.1217	44.5256
SALES_TO_I~T	1358	.857617	.4107438	0	2.5378
RETURN_ON_~T	1340	3.936974	8.367305	-152.8024	55.4716
TOT_DEBT_I~T	1358	25.80472	20.43239	0	245.5468
Premieract~n	1404	31.2198	112.033	0	4136

Appendix 3: Correlation Matrix

	WACC	asc	dps	sd	any_asc	pas	Action~V
WACC	1.0000						
asc	-0.0308	1.0000					
dps	-0.0906*	0.0398	1.0000				
sd	0.0080	0.0112	-0.7145*	1.0000			
any_asc	-0.0015	0.2468*	0.0740*	0.0291	1.0000		
pas	0.0382	0.6031*	0.0793*	-0.0848*	0.1586*	1.0000	
Actionnari~V	0.0252	0.9828*	0.0186	0.0335	0.2565*	0.6580*	1.0000
PX_TO_BOOK~O	0.0726*	-0.0816*	0.0109	0.0110	-0.0278	-0.0563*	-0.0747*
SALES_TO_I~T	-0.0155	0.0360	0.0606*	0.0096	-0.0660*	-0.0270	0.0176
RETURN_ON_~T	0.1114*	-0.0452	-0.0588*	0.0376	0.0438	-0.0609*	-0.0261
TOT_DEBT_I~T	-0.3557*	-0.0254	-0.0492	-0.0560*	0.0545*	-0.0286	-0.0513
Premieract~n	-0.0095	-0.0493	0.0514	-0.0358	-0.0946*	-0.0559*	-0.0550
	PX_TO_~O	SALES_~T	RETURN~T	TOT_DE~T	Premie~n		
PX_TO_BOOK~O	1.0000						
SALES_TO_I~T	0.0615*	1.0000					
RETURN_ON_~T	0.2823*	0.0830*	1.0000				
TOT_DEBT_I~T	-0.1110*	-0.1600*	-0.0468	1.0000			
Premieract~n	0.0214	0.0712*	0.0542*	-0.0353	1.0000		

Appendix 4: Stata Output WACC annual distribution

Year	Freq.	Percent	Cum.
2000	17	5.76	84.75
2001	10	3.39	88.14
2002	8	2.71	90.85
2003	7	2.37	93.22
2004	6	2.03	95.25
2005	6	2.03	97.29
2006	5	1.69	98.98
2009	2	0.68	99.66
2011	1	0.34	100.00
Total	295	100.00	

Appendix 5: Stata Output WACC

Variable	Obs	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
WACC	1354	7.742372	1.928858	1.6665	16.8938	3.720493	0.624631	3.994946

Appendix 6: Stata Output WACC distribution

WACC		
	Percentiles	Smallest
1%	4.1376	1.6665
5%	4.9842	1.7782
10%	5.49	2.5737
25%	6.4144	2.8418
50%	7.5768	
		Largest
75%	8.9155	14.9448
90%	10.1605	15.2673

95%	11.2278	16.4026
99%	13.3248	16.8938

Appendix 7: Stata Output ESO distribution

Actionnariat_salarie_capital				
	Percentiles	Smallest		
1%	0	0		
5%	0	0		
10%	0	0	Obs	1276
25%	0.092	0	Sum of Wgt.	1276
50%	0.9		Mean	2.132492
		Largest	Std. Dev.	4.096348
75%	2.237	30.29		
90%	4.51	32.2344	Variance	16.78007
95%	9	32.75	Skewness	4.056621
99%	23.01	32.8284	Kurtosis	22.22645

Appendix 8: Surveillance Directoire

Surveillance_directoire			
Year	0	1	Total
2000	64	27	91
	70.33	29.67	100
2001	63	34	97
	64.95	35.05	100
2002	63	34	97
	64.95	35.05	100
2003	66	32	98
	67.35	32.65	100
2004	70	33	103

	67.96	32.04	100
2005	70	35	105
	66.67	33.33	100
2006	78	32	110
	70.91	29.09	100
2007	80	33	113
	70.80	29.20	100
2008	84	29	113
	74.34	25.66	100
2009	85	30	115
	73.91	26.09	100
2010	88	29	117
	75.21	24.79	100
2011	92	26	118
	77.97	22.03	100
Total	903	374	1,277
	70.71	29.29	100

Appendix 9: Dirigeant President Conseil

Dirigeant président conseil			
Year	0	1	Total
2000	30	61	91
	32.97	67.03	100
2001	37	60	97
	38.14	61.86	100
2002	41	56	97

	42.27	57.73	100
2003	39	59	98
	39.80	60.20	100
2004	42	61	103
	40.78	59.22	100
2005	48	57	105
	45.71	54.29	100
2006	49	61	110
	44.55	55.45	100
2007	56	57	113
	49.56	50.44	100
2008	58	55	113
	51.33	48.67	100
2009	60	55	115
	52.17	47.83	100
2010	58	59	117
	49.57	50.43	100
2011	54	64	118
	45.76	54.24	100
Total	572	705	1,277
	44.79	55.21	100

Appendix 10: Standard Error Fixed Effect Model

	WACC
asc	-0.314 (3.32)**
dps	-0.848 (4.30)**
sd	-0.853 (2.89)**
any_asc	0.923 (2.41)*
pas	2.294 (0.82)
Actionnariat_salari_DDV	0.288 (3.27)**
PX_TO_BOOK_RATIO	-0.046 (2.00)*
SALES_TO_TOT_ASSET	-0.943 (1.90)
RETURN_ON_ASSET	0.031 (1.89)
TOT_DEBT_TO_TOT_ASSET	-0.032 (2.17)*
Premieractionnaireen	0.000 (4.49)**
_cons	9.228 (13.00)**
R^2	0.10
N	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 11: Random Effect Model

	WACC
asc	-0.288 (3.38)**
dps	-0.853 (5.46)**
sd	-0.812 (4.13)**
any_asc	0.646 (3.47)**
pas	1.661 (0.85)
Actionnariat_salari_DDV	0.224 (3.11)**
PX_TO_BOOK_RATIO	-0.027 (1.53)
SALES_TO_TOT_ASSET	-0.532 (2.80)**
RETURN_ON_ASSET	0.026 (2.76)**
TOT_DEBT_TO_TOT_ASSET	-0.040 (9.28)**
Premieractionnaireen	0.000 (0.17)
_cons	9.382 (31.30)**
<i>N</i>	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 12: Hausman Test

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
asc	-.3137733	-.2879224	-.0258508	.0556851
dps	-.84754	-.8530181	.0054781	.0640568
sd	-.852898	-.8121071	-.0407908	.139394
any_asc	.9232204	.645974	.2772464	.1720688
pas	2.294049	1.660905	.6331437	1.315458
Actionnari~V	.2883342	.2243032	.0640309	.0585304
PX_TO_BOOK~O	-.0463089	-.0274008	-.0189081	.0085737
SALES_TO_I~T	-.9434918	-.5319247	-.4115671	.2224547
RETURN_ON_~T	.0314815	.0258397	.0056418	.0048522
TOT_DEBT_I~T	-.0317652	-.0398005	.0080353	.0031986
Premieract~n	.0001665	.0000643	.0001023	.0000463

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = 23.77
 Prob>chi2 = 0.0082

Appendix 13: Robustness Test Fixed Effect without Standard Error

	WACC
asc	-0.314 (3.08)**
dps	-0.848 (5.02)**
sd	-0.853 (3.54)**
any_asc	0.923 (3.64)**
pas	2.294 (0.97)
Actionnariat_salari_DDV	0.288 (3.10)**
PX_TO_BOOK_RATIO	-0.046 (2.33)*
SALES_TO_TOT_ASSET	-0.943 (3.23)**
RETURN_ON_ASSET	0.031 (2.98)**
TOT_DEBT_TO_TOT_ASSET	-0.032 (5.94)**
Premieractionnaireen	0.000 (0.44)
_cons	9.228 (23.21)**
R^2	0.10
N	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 14: Sensitivity Analysis ASC < 7

	WACC
asc	-0.500 (2.02)*
dps	-0.892 (4.01)**
sd	-0.909 (2.97)**
any_asc	0.918 (2.25)*
pas	2.664 (0.58)
Actionnariat_salari_DDV	0.483 (2.28)*
PX_TO_BOOK_RATIO	-0.048 (2.04)*
SALES_TO_TOT_ASSET	-0.938 (1.81)
RETURN_ON_ASSET	0.033 (1.93)
TOT_DEBT_TO_TOT_ASSET	-0.030 (2.02)*
Premieractionnaireen	0.000 (4.17)**
_cons	9.247 (12.99)**
R^2	0.11
N	1,027

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees below 7 percent. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 15: Robustness Test Fixed effect without "any_asc"

	WACC
asc	-0.283 (3.02)**
dps	-0.841 (4.32)**
sd	-0.868 (2.85)**
pas	2.387 (0.86)
Actionnariat_salari_DDV	0.282 (3.21)**
PX_TO_BOOK_RATIO	-0.046 (1.93)
SALES_TO_TOT_ASSET	-0.997 (2.00)*
RETURN_ON_ASSET	0.033 (1.96)
TOT_DEBT_TO_TOT_ASSET	-0.031 (2.16)*
Premieractionnaireen	0.000 (4.00)**
_cons	9.948 (15.23)**
R^2	0.09
N	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 16: Robustness Test Fixed Effect with squared asc

	WACC
asc	-0.185 (1.35)
ascsq	-0.003 (1.15)
dps	-0.849 (4.39)**
sd	-0.871 (2.88)**
pas	1.705 (0.59)
Actionnariat_salari_DDV	0.272 (3.09)**
PX_TO_BOOK_RATIO	-0.046 (1.93)
SALES_TO_TOT_ASSET	-0.973 (1.95)
RETURN_ON_ASSET	0.033 (1.98)
TOT_DEBT_TO_TOT_ASSET	-0.031 (2.21)*
Premieractionnaireen	0.000 (3.87)**
_cons	9.825 (14.47)**
R^2	0.09
N	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The variable ASCSQ is the percentage of employee's shares squared. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 17: Lagged Effects between ESO and WACC with ASC

	WACC
asc	-0.280 (3.13)**
L.asc	0.076 (1.44)
dps	-0.783 (3.94)**
sd	-0.873 (2.92)**
any_asc	0.984 (2.23)*
pas	4.712 (1.70)
Actionnariat_salari_DDV	0.212 (2.36)*
PX_TO_BOOK_RATIO	0.072 (1.74)
SALES_TO_TOT_ASSET	-1.147 (2.07)*
RETURN_ON_ASSET	0.010 (0.67)
TOT_DEBT_TO_TOT_ASSET	-0.066 (4.15)**
TOT_DEBT_TO_TOT_EQY	-0.000 (0.07)
Premieractionnaireen	0.000 (2.39)*
_cons	10.008 (13.39)**
R^2	0.13
N	1,000

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. L.ASC are employee shares lagged. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 18: Lagged Effects between ESO and WACC without ASC

	WACC
L.asc	0.027 (0.56)
dps	-0.786 (3.98)**
sd	-0.899 (3.01)**
any_asc	0.934 (2.11)*
pas	5.988 (2.14)*
Actionnariat_salari_DDV	0.004 (0.07)
PX_TO_BOOK_RATIO	0.079 (1.87)
SALES_TO_TOT_ASSET	-1.145 (2.06)*
RETURN_ON_ASSET	0.009 (0.64)
TOT_DEBT_TO_TOT_ASSET	-0.067 (4.20)**
TOT_DEBT_TO_TOT_EQY	-0.000 (0.18)
Premieractionnaireen	0.000 (2.39)*
_cons	10.115 (13.70)**
R^2	0.13
N	1,000

* $p < 0.05$; ** $p < 0.01$

Notes: DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. L.ASC are employee shares lagged. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 19: Without Years of Crisis 2001 and 2008

	WACC
asc	-0.314 (3.23)**
dps	-0.898 (4.31)**
sd	-0.954 (3.03)**
any_asc	0.997 (2.35)*
pas	2.716 (0.92)
Actionnariat_salari_DDV	0.275 (2.95)**
PX_TO_BOOK_RATIO	-0.063 (2.32)*
SALES_TO_TOT_ASSET	-0.921 (1.77)
RETURN_ON_ASSET	0.025 (1.56)
TOT_DEBT_TO_TOT_ASSET	-0.028 (2.00)*
Premieractionnaireen	0.000 (4.67)**
_cons	9.261 (12.81)**
R^2	0.10
N	928

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 20: With GICS 40 - Financial Institutions

	WACC
asc	-0.325 (3.52)**
dps	-0.739 (3.81)**
sd	-0.582 (1.90)
any_asc	0.920 (2.53)*
pas	2.082 (0.77)
Actionnariat_salari_DDV	0.305 (3.51)**
PX_TO_BOOK_RATIO	-0.051 (2.18)*
SALES_TO_TOT_ASSET	-0.879 (1.84)
RETURN_ON_ASSET	0.028 (1.91)
TOT_DEBT_TO_TOT_ASSET	-0.031 (2.48)*
Premieractionnaireen	0.000 (2.98)**
_cons	8.758 (13.48)**
R^2	0.09
N	1,291

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 21: Robustness Test Cost of Debt

	WACC_COST_DEBT
asc	-0.040 (0.41)
dps	0.222 (1.50)
sd	0.320 (1.64)
any_asc	-0.450 (2.10)*
pas	-1.702 (0.65)
Actionnariat_salari_DDV	0.009 (0.12)
PX_TO_BOOK_RATIO	0.089 (3.11)**
SALES_TO_TOT_ASSET	0.047 (0.21)
RETURN_ON_ASSET	-0.019 (1.65)
TOT_DEBT_TO_TOT_ASSET	0.014 (3.03)**
Premieractionnaireen	-0.000 (2.61)*
_cons	3.097 (9.11)**
R^2	0.06
N	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

Appendix 22: Robustness Test Cost of Equity

	WACC_COST_EQUITY
asc	-0.157 (1.01)
dps	-1.669 (5.82)**
sd	-2.088 (4.67)**
any_asc	1.774 (3.03)**
pas	4.998 (1.27)
Actionnariat_salari_DDV	0.197 (1.35)
PX_TO_BOOK_RATIO	-0.143 (4.27)**
SALES_TO_TOT_ASSET	-1.191 (1.71)
RETURN_ON_ASSET	0.007 (0.48)
TOT_DEBT_TO_TOT_ASSET	0.005 (0.58)
Premieractionnaireen	0.000 (1.76)
_cons	10.815 (12.03)**
R^2	0.14
N	1,110

* $p < 0.05$; ** $p < 0.01$

Notes: ASC is the percentage of shares held by employees. DPS is a dummy variable and it takes 1 if the board is separated into two - one board of directors and one committee board composed of owner representatives. SD is also a dummy variable and it takes 1 if the general director is at the same time the head of the committee; PAS represents the percentages of employee shareholders represented in the board; Actionnariat_salarié_DDV corresponds to the fraction of employee shares with voting rights. Any_ASC is a dummy variable which shows if firms have ESO or not. The second set of five variables checks for corporate finance effects: PX_TO_BOOK_RATIO is the price to book ratio that determines the relationship between the market value and the book value of the firm. Therefore, it evaluates how valuable a share is. SALES_TO_TOT_ASSET sales to total assets is a ratio that measures how efficiently a firm manages its sales compared to its assets. RETURN_ON_ASSET shows how profitable a firm is compared to its assets. TOT_DEBT_TO_TOT_ASSET the debt to asset ratio demonstrates the risk of firms' loans due to the comparison of its debt to its assets. TOT_DEBT_TO_TOT_EQY total debt to total equity demonstrates which proportion of equity and debt of a firm is used to finance its assets. Premieractionnaireen is the ratio of the biggest share owner to shares outstanding

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