R&D Investment, Governance and Management Entrenchment in French Companies Listed in SBF250

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ABSTRACT

This study seeks to explain the management entrenchment by investment of free cash flow (FCF) in research and development (R&D), debt, market structure (internal or external), the multinational nature of firms and the characteristics of the board of directors using a sample of 128 groups of French companies listed on the SBF250 between 2003 and 2008. The results show that investment in R&D helps the managers to enhance their authority with respect to the shareholders. The multinational nature of the firm exerts a significant effect on the entrenchment strategy. Manager replaces the internal capital market to the outside market to avoid scrutiny by creditors. We also find an insignificant effect exerted by the debt on the management entrenchment. Finally, we find the absence of a significant relationship between management entrenchment, as measured by discretionary accruals and seniority of the officers, and the characteristics of the board of directors.

Keywords: *Management entrenchment, R&D, internal market capital, governance mechanisms.*
Jel Codes: *G32, M14*

Introduction

The management entrenchment is a deliberated behavior realized by the manager considered as more informed actor which consists of serving own interests at the expense of the shareholders as less informed actors. It takes different forms. The first consists of influencing the accounting results by increasing or decreasing them according to individual needs. The second consists of increasing the specific investment to let the information asymmetry between shareholders and managers more complex, which helps these later to maintain their stations long term.

The agency theory (Fama, 1980; Jensen and Meckling, 1976; Jensen and Murphy, 1990) examines this subject on the level of the agency conflicts characterizing the relationships between managers, shareholders and creditors. It insists on several control systems limiting the differences of opinions and interests. The confrontation of this theory to the entrenchment one explains why some control systems are ineffective when managers serve their own interests at the expense of shareholders. This is to say that the integration of the entrenchment theory hypotheses contributes to determine the limits of the mechanisms of control exerted on the managers to incite them to act in the interest of their principal (Alexandre and Paquerot, 2000).

The analysis of the control systems exerted to influence the management behavior is essential to the comprehension of the organization's function and its performance (Alexandre and Paquerot, 2000). However, in spite of the importance of studies realized within the framework of the independent firms, this topic remains, according to our knowledge, little explored within the framework of the companies of group such as the particular case of the multinational companies having a strong internationalized activities.

The aim of this study is to identify and analyze the factors, being able to reinforce or to attenuate the discretionary behavior of the managers in order to discover the differences or the similarities of the behaviors of the managers in multinational and domestic companies as regards the entrenchment target.

To reach this objective, we try to confront various theories to argue the entrenchment strategies. The diversity of ideas developed in theoretical and empirical studies shows the absence of agreement on the matter. It leads to question on the strategy and trajectories of entrenchment and on the effectiveness of the control systems imposed on the managers. Accordingly, the central question of our research:

Up to what point can the entrenchment systems influence the effectiveness of the control imposed on the managers?

To bring answers to this question, we try to investigate the managers' discretionary behavior of 128 multinational and domestic French firms over the 2003-2009 period to identify the influences which they had to undergo by the mechanisms of control.

This paper is organized as follows: in the first section we present the management entrenchment strategy and the factors influencing positively or negatively the opportunist behavior. We present in the second section the methodology and the estimated model. Results are presented and discussed in the third section. Finally, the fourth section is devoted to the conclusion.

Entrenchment strategy and influences of the control systems imposed on the managers

Trajectories of the management entrenchment

The concept of entrenchment was developed by Shleifer and Vishny (1989). It is a strategy which focuses on the directors to increase their own utilities in their organization by increasing their private expenditure and/or the cost of their replacement.

Profiting from a situation of entrenchment, the manager may, likely, decide according to his situation to benefit from his capacity in pecuniary or different other form. He can also increase his capacity to be maintained in the station longest possible or to transmit his capacity to a successor whom will have chosen (Paquerot and Chapuis, 2003). For these reasons, he develops various strategies. S/He uses the resources of his organization to invest in specific activities which increase the firm's risk and generate a significant informational asymmetry. Accordingly, s/he increases his capacity and different advantages s/he perceives such as the good remuneration and the security of his job (Alexandre and Paquerot 2000).

Compared to the whole of the firm's partners, the managers have a better access to the specific information. This latter constitutes an essential resource for the organization. It represents for the controllers a source of power (Pfeffer 1881, 1882, Pfeffer and Salancik, 1978). However, the strategic state of the managers enables them to control the access to the information and to restrict its availability for the other actors in the organization. Their investment and finance policies depend on the nature of their objectives. They act in increasing the informational asymmetry towards the controllers to increase their discretionary behavior. To spur their opportunism by preparing a suitable land, they maintain various transactions with the subsidiaries such as specific investments (transactions in physical flow) or use their internal capital market (ICM) (transactions in financial flows) by transferring internal resources between the parent companies and their subsidiaries or between the subsidies themselves to finance specific and (geographically) diversified investments. These strategies help them to limit the access of the other actors in the firm to the information. This indicates that the innovation and the decentralization constitute a means to avoid the control exerted by the shareholders and other stakeholders.

Stiglitz and Edlin (1992) explain how the managers can benefit from the informational asymmetry to restrict the shareholders' control and to dissuade potential directors to postulate for the firm management. The investment policy constitutes, in this way, a notable entrenchment tool. According to Alexandre and Paquerot (2000) the increase in firm risks through a particular investment policy in the specific sectors but well-known to the managers can eliminate potential competitors' teams without necessary skills to a good management of the firm.

The aim of the strategies adopted by the managers is to increase their discretionary behavior "*using the means at their disposal, i.e. their human skills but also the firm's assets, to neutralize the control systems and to increase the dependence of the stakeholders towards the resources which they control*" (Alexandre and Paquerot, 2000; p. 9).

They can also increase the informational asymmetry towards the stakeholders by investing in assets they have good know-how. This makes information more complex to apprehend for the stakeholders and the potential directors. Thus, it would be beneficial for the manager to increase the dependence of the shareholders to them in order to increase their discretionary behavior (Shleifer and Vishny, 1989; Morck, Shleifer and Vishny, 1990). They make specific transactions with the subsidies and decentralize the specific investments even this can be against the objective of maximization of the shareholders wealth.

The management entrenchment becomes easier once the informational asymmetry between shareholders and managers increases. Thus, the latter find advantages in investing in assets raising their discretionary. Innovation and decentralization constitute strategic tools helping managers to increase their informational asymmetry towards the shareholders. Particularly, the decentralization of the specific investment makes more difficult the control of the managers' behavior. Geographical, linguistic and cultural disparities induce – at least - two effects: the increase in the cost of information and the decrease of their pertinence and quality. Moreover, the R&D includes large part of tacit knowledge (Grant, 1996a and b; Nonaka and Takeuchi, 1997). Thus, it would be so difficult to transfer this information, which constrains the shareholders to exert their control on the managers.

These investment policies (innovation and decentralization) decrease the effectiveness of the control exerted on the managers. The comprehension of their effects on the effectiveness of the modes of control and consequently on managerial behavior can be given starting from the confrontation of the contributions of the entrenchment and the agency theories.

H_{1a}: *The increase in R&D facilitates the management entrenchment.*

H_{1b} : *The decentralization of the specific investments reinforces the managerial discretionary behavior.*

The managers use the free cash-flows to finance the R&D programs. This financial mode allows them to avoid the debt finance which constitutes an effective system of control. In this sense, Jensen (1986) supposes that managers can increase their wealth at the expense of the shareholders by investing the free cash-flow in specific assets and limiting their distribution as dividend. In the same idea, the entrenchment theory (Shleifer and Vishny, 1989), argues that the managers invest these funds in specific investments to increase their compensation and their private expenditure since they are related to the increase in the firm size. Thus, they take advantages using the free cash-flows to avoid the control exerted by the external market and to increase discretionary behavior in making decisions, which enables them to increase their authority towards the shareholders. Indeed, investment on *the free cash-flows* even in non-profitable projects increases the firm size over its optimal limit. This gives the manager more ability to increase the value of assets under their control and to constrain the control exerted by the shareholders.

Taking the predictions of the agency theory as a starting point, several studies suppose, in opposition to the pecking order theory of Myers (1984), which excessive use of internal financing is due to the agency conflicts between the managers and the creditors. Seeking to limit external control, the managers prefer internal finance compared to the debt. This helps them to protect information relating to the strategies of development of their organizations (Gertner, Robert, Scharfstein and Stein, 1994). It reinforces, also, their discretionary power and limits the control exerted by the creditors.

In the absence of a bank control, the managers can make decisions serving their own interests. They benefit from the stability of *the cash-flows* to increase their investment in R&D. The decentralization of these investments offers them additional possibilities to improve their wealth at the expense of the shareholders. It reinforces informational asymmetry between managers and shareholders by increasing the knowledge dispersion which induces several difficulties to evaluate present and future value of the firm.

H_2: *The presence of free-cash-flows helps manager to invest in R&D in entrenchment targets*

While many existing studies report that diversified firms can rely on internal capital markets that enable them to pool and reallocate corporate resources more efficiently than external market (Williamson 1975), several recent studies challenge these findings. Anxious to increase informational asymmetries towards the shareholders, the managers invest in R&D and diversify them. They benefit from the presence of the internal capital market (ICM) to transfer the financial resources from the subsidiary with excess financial resources to those having important investments in R&D. Thus, the ICM helps managers to finance the specific investments, which consequently support their entrenchment. It constitutes a fundamental financing instrument for risky investments which are rationed on the external market. Its presence reinforces the managers' opportunism and decreases the shareholders gain. Accordingly, the transfer of resources to the subsidiary with high R&D, through the ICM is considered as induced by the objective of maximization of the managers' wealth at the expense of the shareholders (Jian and Wong, 2003; Liu and Lu, 2004; Thomas, Herrmann and Inoue, 2004; Chang, 2003; Friedman, Johnson and Mitton, 2003).

The managers can, particularly, make special transfer of resources serving their own needs (Jian and Wong, 2003 and Thomas et al., 2004). They manage to divert the firm resources to specific projects offering them more independence on the share-

holders and other external controllers using internal transfers of capital between parent companies and their subsidiaries and/or between the subsidiaries themselves (Chang, 2003; Friedman et al., 2003; Liu and Lu, 2004).

This transfer of resources to the specific and geographically diversified investments helps managers to paralyze the control systems by increasing the informational asymmetry within the organization. This asymmetry contributes largely to affect the effectiveness of the control systems and prevents the controllers from applying a sanction.

H_3: *Managers substitute their internal capital market to external market in order to avoid the control system.*

The agency relationship: conflict of interest which incites to develop different mechanisms of control

The financial theory supposes that various modes of control can be used to force the managers to manage the firm in accordance with shareholders' interests. The shareholders' structure, the composition of the board of directors, the presence of institutional investors, the incentive compensation, the debt… constitute direct or indirect control systems influencing the managers' behavior. Thus, the shareholders concentration and/or the presence of financial or institutional shareholders are supposed to have a positive influence on the firm performance. In the same way, the presence of certain administrators (financial or institutional), the part of capital held by the member of the board of directors and the recourse to external administrators more independent and more qualified than the internal ones should exert an effective control on the managers (Alexandre and Paquerot 2000). At the same, the use of debt and incentive compensation can dissuade the manager to manage the firm so as to improve its performance because they must pay future engagements towards their creditors and they have to improve their remuneration since it is indexed on the performance.

However, in opposition to the agency theory which proposes various mechanisms to control the managers and to incite them to make decision improving the firm profitability, the entrenchment theory relativizes the role of these mechanisms. It supposes that they will not always be sufficient to limit the opportunistic behaviors of the managerial teams (Alexandre and Paquerot, 2000).

Thus, the potential investors find in the development of the agency theory a whole of control systems allowing, on one hand, to discipline the managers and on the other hand, to incite them to manage the firm in accordance with their principal interests.

In this design, the board of directors constitutes, according to the agency theory, the principal internal mechanism of control. The board of directors presents a specific influence on the other control systems exerted on the managers and has a significant disciplinary role dissuading the managers to act in the shareholders interest. This conception was supported theoretically by Hermalin and Weisbach (2003). They announce that the board of directors contributes to reduce the agency conflicts between the shareholders and the managers. This prediction is confirmed recently by Lefort and Urzua (2008). These authors confirm the fact that the board of directors plays a pivotal role in the management control. It constitutes a principal mechanism of control which seems to reduce the agency costs between the shareholders and the managers.

Particularly three significant dimensions of the board of directors are frequently discussed in previous theoretical and empirical studies. The first is related to the size of the board (Jensen, 1993; Yermack, 1996). A big size increases the effectiveness of the control exerted by the board of directors because in such case there is high possibility to be composed by more experiments and competent members. However, the difficulties in coordinating the individual contributions, the conflicts at the time of the decision-making and the difficulties in maintaining good relations between the members as well as the high costs of communications between them seem to reduce these advantages and the effectiveness of the control exerted by the board on the managers (Lipton and Lorsh, 1992; Jensen, 1993).

H_{4a} : *The larger the size of board of directors, the higher the effect on the managers' activities.*

Moreover, the entrenchment theory insists particularly on a pivotal dimension: the independence of the administrators to the managers (Alexandre and Paquerot, 2000). According to Weisbach (1988) and Rosenstein and Wyatt (1997) internal administrators have more capacity to be opposed to the most contestable decisions that make the managers than it is the case of internal administrators. Their presence increases the shareholders wealth rather than reinforce the management entrenchment (Cotter, Shivdasani and Zenner, 1997; Black, Jang, and Him, 2006).

Dahya, Dimitrov and McConnell. (2008) investigated the effectiveness of the control exerted by the board of directors. Using a panel of 799 companies in 22 countries, they conclude that the independence of the board of directors ensures an effective control on the managers. Kor and Misangyi (2008) confirmed the same result using a sample of 78 firms over the 1990-1995 period and by Lefort and Urzua (2008) using a sample of 160 Chilean Companies. More recently, several studies such as Lin, Ma and Su (2009) and Lau, Sinnadurai and Wright (2009) have confirmed the same results that independence of the boards of directors improves the effectiveness of the controls of the managers. Particularly, Chen, Dyball and Wright. (2009) confirmed this relationship using a sample of 101 Australian firms and conclude that external administrators have more capacity to control the manager when compared to internal ones.

H_{4b} : *The presence of external administrators reinforces the effectiveness of the board of directors*

The distinction between the function of chief executive officer (COE) and the chairman of the board of directors constitutes the third dimension is considered as very important.

Few studies support the idea that the duality of functions improves the firm performance (Godard and Schatt, 2000). They consider that duality facilitates the management and avoid divergence in making decisions and strategies. It leads consequently, a higher performance (Godard, 1998).

Oppositely, several studies consider that duality limits the separation of the functions of decision and control. It plays against the principle of independence of the board of directors through the manager influences (Mizruchi, 1983; Patton and Baker, 1987; Daily and Dalton, 1993). However, the separation of both the function of CEO and chairman of the board limits the capacity of the manager to influence the control exerted by the administrators (Beasley and Salterio, 2001). Thus, the separation of the two functions seems to limit the discretionary behavior of the manager and to ensure the effectiveness control exerted by the board of directors (Jensen, 1993).

H_{4c}: *The separation of both the function of CEO and chairman of the board of directors improves the effectiveness of the board of directors.*

Regarding the influence of institutional investors, schools of thought seem to be opposed. The first, represented by the holding of the agency theory, confirms the

hypothesis of institutional investors controllers. They contribute effectively to the control of the managers (Brickley, Lease and Smith, 1988; Barclay and Holderness, 1991; Bethel and Liebeskind, 1993; McConnell and Servaes, 1990; Mallette and Fowler (1992); Chaganti and Damanpour, 1991; Agrawal and Mandelker, 1992; like Bathala, Moon, and Rao, 1994). The importance of capital they hold gives them more authority toward the managers (Brickley and *al,* 1988; Pound, 1992). It incites them, in addition, to invest in manager control because they will not have the capacity to liquidate their situation easily. This control helps them to avoid the losses associated to the managers' discretionary they can support.

Moreover, the importance and the diversity of investments they carry out give them the advantage of easy access to information, which facilitated their control of managers. In this line, Alexandre and Paquerot (2000; p. 15) suppose that "*the resources they hold help them to exert their control at a weaker cost than the other stakeholders. In fact, the nature of their activities and the importance of investments they carry out allow them a better access to information, which implies simultaneously a better knowledge on the performance of the companies of the sector, abundant information on the environment, a better knowledge of the management market… Moreover, they have particular skills to analyze available information about the firm and its environment. These various advantages enable them to exert their control at a weaker cost compared to individual shareholders* ".

The second current of thought, represented by the holding of the [Les tenants de la théorie] entrenchment theory, supports the hypothesis of institutional investors serving the managers interests. Pound (1988), Wruck (1989), Shivdasani (1993) and Slovin and Sushka (1993) argue that institutional investors have the capacity to collaborate with managers at the expense of the ordinary shareholders. Their presence limits, consequently, the effectiveness of the other mechanisms of control (Neumann and Voetmann, 1998) and encourages the management entrenchment. In fact, they can act as speculative shareholders and privilege the short-term return on the long-term (Ben M'Barek, 2003; Coffee, 1991; Stapledon, 1996; Bushee, 2001). Having such qualities, they find more advantages in collaborating with the managers rather than in investing in their control. This increases their own wealth on the shirt-term level even at the expense of the other shareholders.

H_5 : *Institutional investors contribute to an effective control on the managers*

In addition, the use of the *stock-options as* incentive compensation is considered by the financial theory intended to incite the managers to invest in the more profitable

projects (Baber, Janakiraman and Kang, 1996; Kole, 1997; Hutchinson and Gul, 2004). They *are intended to solve the agency conflicts by indexing the managers' compensation on the firm performance (*Caby and Hirigoyen, 2005).

Thus, several studies show that the stock-options play a pivotal role in aligning the managers' interests on those of the shareholders which reduce significantly the agency conflicts (Core and Guay, 2001; Hartzell and Starks, 2003; Yermack, 1995; Mehran, 1995; Palia, 2001). They reduce the divergence of interests between the shareholders and the managers and incite these later to make more profitable decisions.

Taking the agency theory as a starting point, these studies consider that incentive compensation contributes to align the managers' interests on those of the shareholders. It influences positively the performance since it incites the managers to make more profitable decisions (Jensen and Murphy, 1990; Murphy, 1986; Hall and Liebman, 1998).

Oppositely, several studies support the predictions of the entrenchment theory and reject the assumption that incentive compensation reduces the conflicts of interest between managers and shareholders. According to Chen, Steiner and Whyte (2006) and Sullivan and Spong (2007), the stock-option can induce more risk for the shareholders on the long-term and can cause damages to their wealth. In fact, the managers try to increase the value of the stocks they hold in order to improve their compensation. This incites them to manipulate the accounting results to enhance them or to smooth their volatility in order to influence the way the potential investors perceive the future profitability and risk of the firm. This masks the real profitability and affects the firm growth since the shareholders make their decisions using bad information about accounting results. They can invest in projects increasing the failure risk or reject others more profitable considering bad information about the performance and the risk of their company. Oppositely, the managers take advantages of these manipulations when the firm profitability is low and their remuneration is based on stock-options. The increase on the firm value at a shirt-term improves their remuneration even if it affects negatively the firm value at a long-term.

H_6 : *The remuneration by stock-options serves to align the interests of the mangers on those of the shareholders.*

The debt is considered in the financial literature as an external mechanism being able to dissuade the managers to make decisions maximizing the firm value (Jensen and Meckling, 1976; Jensen 1986; Denis and Denis, 1995). It contributes to reduce the

free cash-flows problem (Jensen, 1986) since the managers are asked to pay their engagement towards their bank which limits their discretionary power (Stulz, 1990). In fact, the creditors accept to finance only profitable projects to guarantee the refunding of their debt. They refuse, consequently, to finance specific investments since their value decreases in case of financial distress (Nekhili and Poincelot, 2000). The debt incites, therefore, the managers to invest in more profitable projects in order to avoid the disciplinary effect of the external market.

However, the managers can use their investment policy to influence the capacity of the creditors to evaluate the profitability and the risk of their projects. They invest in R&D in diversified subsidiaries in order to increase informational asymmetry. In such situation, the creditors encounter serious difficulties to obtain necessary information to evaluate the profitability and risk of the investment and to control the managers.

H $_7$: *The debt exerts a significant disciplinary effect on the managers*

Methodology and results

Sample

Our sample includes 128 French firms with dimensions to index SBF 250. Since they present an atypical financial operation or that their economic operation is difficult to conceive in the reason of insufficiency of available data, certain companies such as banks, the insurance companies… are withdrawn from the initial sample.

Firms are classified in multinationals and domestics. To distinguish between them, we refer to two criteria used in Doukas and Pantzalis (2003). A firm is defined as multinational when this firm reports foreign assets and foreign sales ratios of 10% or more. On the other hand, the firm is defined as domestic firm only if it reports any foreign assets and foreign sales. Using this classification rule, two groups of companies are identified: the first includes 56 domestic firms and the second includes 72 multinational firms.

The financial and managerial data are collected using annual reports. Collected data covers the 2003-2009 period. Our final sample consists of 128 groups over a period of 7 years (896 observations). The use of the panel data give the advantage to benefit from the both, individual and temporal dimension of the available information.

Model

The aim of this section is to present the relation between the management entrenchment, the investment strategies and the governance. The model giving these relationships is shown below:

$$\begin{aligned} ENTR_{it} = {} & \alpha_0 + \alpha_1 R\&D_{it} + \alpha_2 DEC_{it} + \alpha_3 CF_{it} + \alpha_4 ICM_{it} + \alpha_5 NADM_{it} \\ & + \alpha_6 EXTAD_{it} + \alpha_7 SEPARAT_{it} + \alpha_8 INSTIT_{it} + \alpha_9 STOKOP_{it} \\ & + \alpha_{10} DEBT_{it} + \alpha_{11} SIZE_{it} + \alpha_{12} INT_{it} + \varepsilon_{it} \end{aligned}$$

with

$ENTR_{it}$: the management entrenchment measured by both the discretionary accruals and the seniority of the managers of the firm i in the year t,

$NADM_{it}$: size of the board of directors of the firm i in the year t measured by the number of administrators,

$EXTAD_{it}$: Independence of the board of directors measured by the number of external administrators divided by the number of all the administrators,

$SEPARAT_{it}$: Boolean variable having the value 1 if there is separation of the function of chief executive officer and chairman of the board of directors of the firm i in the year t, and 0 otherwise,

$INSTIT_{it}$: Boolean variable having the value 1 if there is presence of institutional investors holding more than 5% of assets of the firm i in the year t, and 0 otherwise,

$STOKOP_{it}$: Boolean variable having the value 1 if firm i use the stock-option as incentive compensation in the year t, and 0 otherwise,

$DEBT_{it}$: the debt used by the firm i in the year t measured by the financial debt divide by the total liabilities,

$R\&D_{it}$: the R&D expenditures divided by the total net sales,

DEC_{it}: Boolean variable having the value 1 if there is R&D decentralization in the firm i in the year t, and 0 otherwise,

CF_{it}: The current cash-flows are used as a indicator of the capacity of the firm to generate future cash-flows. The selected cash-flows correspond to the result before depreciation, expenses and taxes,

ICM_{it} : internal capital market measured by the volume of transactions between headquarters and their subsidiaries or between subsidiaries themselves,

INT_{it} : Boolean variable having the value 1 if the firm i is a multinational company, and 0 otherwise,

$SIZE_{it}$: the firm size measured by the logarithm of total assets,

ε_{it} : the error term.

Results and discussion

The estimation of multiple regression models requires the absence of multicolinearity between the independent variables. This problem refers to a situation in which two or more explanatory variables are highly correlated. A problem of bi-variable multicolinearity arises when two independent variables are strongly correlated. Kervin (1992) estimates that a serious problem of multicolinearity arises starting from a limit of 0,7. Table 1 presents the Pearson correlation between exogenous variables appearing in our model.

Table 1: Pearson correlation between independent variables

	SIZE	DEC	MIC	DEBT	INT	CF	STKOPT	INSTIT	R&D	NADM	EXTAD	SEPARAT
SIZE	1.00											
DEC	0.35	1.00										
MIC	-0.10	0.12	1.00									
DEBT	0.20	-0.15	0.00	1.00								
INT	-0.40	-0.67	-0.04	0.18	1.00							
CF	-0.13	0.16	0.21	-0.28	-0.14	1.00						
STKOPT	0.15	0.14	0.02	-0.04	-0.06	0.05	1.00					
INSTIT	0.21	0.44	0.06	-0.06	-0.36	0.10	0.01	1.00				
R&D	-0.01	0.34	0.17	-0.10	-0.17	0.36	0.08	0.25	1.00			
NADM	0.02	0.10	-0.02	-0.03	-0.09	0.00	0.00	-0.00	-0.09	1.00		
EXTAD	0.02	0.03	0.03	-0.03	-0.01	0.02	0.07	0.05	-0.03	0.07	1.00	
SEPARAT	-0.00	0.04	-0.00	-0.05	-0.03	-0.01	-0.01	-0.01	0.01	0.11	0.08	1.00

Results in table 1 indicate that all correlation coefficients are lower than 0,7. Consequently, we conclude the absence of bi-variable multi-colinearity.

In addition, the sample combines both individual and time series data. This seems generate a risk of homogeneity on the sample which leads to bad estimators using the MCO regression. This requires some tests to identify if there is a presence of individual effects in the data and to specify in such case whether it is a fixed or a random effect. Two tests are used. The first is the test of presence of individual effect. The result is an "F-Statistic". There is individual effect if the "p-value" is lower than the significance level (here: 10%). The second is the "Hausman" test. This later specifies the type of effect. The result is a "Chi-2" statistic which indicates that there is a random effect if the "p-value" is higher than 10% and a fixed effect otherwise.

The results of the two tests are presented in table 2.

Table 2: Homogeneity and Hausman tests

Models	Homogeneity		Hausman test		Estimation Method
	F(127, 752)	Prob > F	chi2(12)	Prob>chi2	
Model 1: Accruals	5.90	0.0000	18.23	0.1090	GLS
Model 2: Seniority of the manager	5.78	0.0000	19.72	0.0727	Within

Results in table 2 indicate that all «p-value» of the statistics "F" are lower than 10%. Thus, we reject the hypothesis of homogeneity of the data. Moreover the Hausman test indicates for the first model (Accruals) the effectiveness of the random effect estimator. However, the estimator gives bad results if there is a strongly correlation between the errors and the explanatory variables. For this reason, it would be better to use the GLS estimator.

Oppositely, the results of the "Hausman" test indicates for the second model (seniority of the manager) the effectiveness of the within operator.

Table 3 presents the results of the multi-variable estimate regression for entrenchment measured by both the accruals and the seniority of the managers.

Table 3: Multi-variable estimation regression result

Variables endogenous	Accruals (GLS)		seniority of the manager (WITHIN)	
Variables exogenous	Coef. .	z-statistic	Coef. .	z-statistic
R&D	0.1689	1.75**	0.2415	2.29**
DEC	0.1091	6.33***	0.0455	2.53**
CF	0.6690	31.15***	0.6526	26.82***
ICM	0.0725	4.40***	0.0424	2.09**
NADM	-0.0008	-0.54	0.0008	0.57
EXTAD	0.0035	0.13	-0.0340	-1.20
SEPARAT	-0.0189	-1.62	-0.0016	-0.13
INSTITUT	-0.4872	-7.23***	-0.4945	-5.63***
STOCKOPT	-0.2170	-2.45**	-0.4224	-5.68***
DEBT	-0.0108	-0.71	0.0038	0.24
INT	-0.0008	-0.07	0.0313	2.45**
SIZE	-0.0369	-10.99***	-0.0408	-9.64***
_cons	0.7440	14.12***	0.8160	13.18***
Wald chi2(12)		1499.46	R-sq: within	0.5922
Prob > chi2		0.0000	F(12,806)	97.55
Log likelihood		316.5322	Prob > F	0.0000
Number of obs		892	Number of obs	892
Number of groups		128	Number of groups	128
Obs per group:	min = 6		min = 6	
	avg = 6.97		avg = 6.95	
	max = 7		max = 7	

Significant at the level:: (***) 1% ; (**) 5% and (*) 10%.

Results in table 3 indicate a positive influence of the R&D on the management entrenchment. The specific investment helps managers to improve their own returns at the expense of the shareholders and to maintain their position at long-term. They invest in R&D to escape from the control through the increase of informational asymmetry. The specificity of these investments is that they are in dependency to the managers' private knowledge and competence. They influence, consequently, their presence in the firm at the long-term. In addition, managers may profit from the increase on R&D associate to this investment to influence the effectiveness of the control they supported by limiting the capacity of the controllers to specific information. This gives them more authority towards the shareholders and the other stakeholders.

The financial intermediaries have generally different means to dissuade the managers. They have easy access to private information which offers them more authority towards the manager. Consequently, they exert an effective control. However, the managers influence the quality of the control using their investment strategy. They increase their investment in R&D to avoid the debt finance since creditors refuse to finance specific investment. In fact, there are intangible assets which can't serve as guarantee in case of financial distress. They, also, increase the firm risk and help managers to transfer incomes from creditors to shareholders. Managers profit from this situation of less debt finance to serve their own interests at the expense of the shareholders. Giving that they are less controlled they increase their private expenditures in specific assets allowing them to be in the firm at a long-term.

These results seem to confirm the prediction of Nekhili and Poincelot (2000) considering that the R&D, as risky and intangible investments, cannot be easily financed by debts.

Taken together these arguments allow us to confirm our first hypothesis according to which the R&D reinforces the management entrenchment.

Given that the R&D considered separately influences positively the management entrenchment, his decentralization reinforces the opportunist behavior since it generates several problem of informational asymmetry. Results in table 3, indicate a positive and significant impact of the decentralization of the R&D on both the accruals and the seniority of the managers. Managers decentralize their specific investment to decrease the effectiveness of the control. They increase the difficulty to access to private information serving to a good control because the external environment constitutes a major resource of uncertainty.

Thus, innovation and decentralization constitute essential factors encouraging the emergence of the favorable conditions for the management entrenchment. Indeed, diversification increases organizational complexity which affects negatively the quality of available information. This indicates that innovation and diversification help manager to maximize their own interests at the expense of the development of the firm. They increase, particularly, the informational opacity which enhance the authority of the managers towards the shareholders and others controllers.

Particularly, decentralization leads to more uncertainty by increasing the cultural and linguistics distance between the actors. Environmental uncertainty influences the control system and helps managers to make decisions serving their entrenchment.

These arguments seem to confirm our hypothesis H_{1b} according to which the decentralization of R&D reinforces the management entrenchment.

We notice, in addition, a positive influence of the internal finance on both the accruals and the seniority of the managers. This seems to confirm our second hypothesis and the predictions of the theory of free cash-flows developed by Jensen (1986). That is to say that managers use the excess of internal resources to finance specific investment serving their own interests at the expense of the shareholders. They invest in intangible assets even they are non profitable in order to increase their discretionary behavior. The R&D generates serious problems of informational asymmetry between shareholders and managers and helps these later to entrench largely in the firm. The dependence of these investments on the managers' knowledge and competences helps them to be maintained in their station at a long-term and/or to maximize their private expenditure.

Internal finance is used by managers to avoid the disciplinary effect of the debt. This indicates a positive relationship between the internal resources and the management entrenchment. The excess in cash-flows helps managers to finance specific investment generally constrained on the external market. This helps them to increase informational asymmetry by investing in specific assets and to avoid the control of external market.

We also note that the presence of the ICM reinforces the opportunistic behavior of the managers. It presents a positive impact on management entrenchment. In fact, the managers substitute their internal market to the external market in order to avoid the control exerted by this later. Secondly, the flexibility of transaction within

the ICM helps them to transfer the excess of financial resources from subsidiaries with less investment in R&D to those with high investment in order to enhance their opportunistic behavior. In other words, the internal finance of the risky investment by ICM allows the managers to improve enhance their gain at the expense of the shareholders. This result seems to be in contradiction with the prediction of Williamson (1975) according to which the IMC serves to finance the well profitable projects and to exert a significant control on the managers.

Taken together, these arguments allow us to confirm the third hypothesis according to which the managers prefer the ICM to the external market in order to increase their discretionary behavior by investing in specific investment and eliminating the control of the debt.

We note, Moreover, a negative relationship between the management entrenchment and the presence of institutional investors. These later, exert by comparison to their individual competitors, more effective control on the managers. They have necessary skills allowing them a better evaluation *ex ante* of risk and return associated to new investments and to ensure an effective control *ex post* on the managers.

In fact, given the importance of assets they hold, the institutional investors are incited to invest in the control of the manager instead of liquidating their portfolio of assets because the sale of the blocks of stocks affects negatively their value. The high assets they hold give them, also, more authority towards the managers. These later have to manage the firm so as to improve its performance in order to avoid the possibility of massive sale of assets held by the institutional investors. In fact, the massive sale of assets decreases the stock price and affects negatively the firm performance what reduces, significantly, the managers' gain particularly if their compensation is based on the performance. This confirms our hypothesis H_5 according to which the presence of institutional investors exerts an effective control on the managers.

We note, in addition, a negative relation between the management entrenchment and the incentive compensation. This result is in accordance with our sixth hypothesis. The stock-option as incentive compensation serves to align the interest of the managers on that of their principal (shareholders). It decreases the agency conflict between shareholders and managers and incites the later to manage the firm to improve the performance. These results confirm the predictions of Caby and Hirigoyen (2005), Core and Guay (2001), Hartzell and Starks (2003) and Palia (2001). Incentive compensation constitutes, in fact, a very significant tool

serving to resolve the agency conflicts by punishing the deviating behavior of the managers.

The shareholders are the first victims of the discretionary behaviors of the managers. Since they have not necessary skills to control the managers, the shareholders choose to align their compensation to the performance. In fact, the stock-options incite the managers to invest in more profitable and less risky project what improve the firm performance and consequently their own gain since their compensation is indexed on the performance.

Results in table 3 indicate, oppositely, a non-significant relationship between the debt and the management entrenchment measured by both the discretionary accruals and the seniority of the managers. The creditors have, naturally, several means to discipline the managers. They have an easier access to private information enabling them to better control the manager.

Moreover, the obligation of refunding of the debt and the interests is supposed to reduce the manager autonomy compared to the shareholders. In particular, the creditors agree to finance only profitable projects to guarantee the refunding of their debt at the date of payment. They require fixed assets as guarantees and refuse to finance the R&D investments since they are in major part intangible. Their net value asset (NVA) is very weak even null in the event of discontinuity of the business. Consequently, the creditors incur high risk when they finance these investments. Moreover, the increase in the expenditure in R&D helps the manager to increase the risk of the activity and to ensure a transfer of wealth from the creditors to the shareholders.

Thus, to avoid the debt and to neutralize its disciplinary effect, the managers try to increase their investments in R&D. They also decentralize these investments to increase informational asymmetry and to incite the creditors to refuse the financing of their organizations. This strategy influences the effectiveness of the control exerted by the debt on the manager.

For these reasons, the debt constitutes only marginally part in the financing of the R&D. The decentralization of these investments reinforces informational asymmetry and pushes the creditors to minimize the debt amounts. Taken together, these arguments seem to explain why the debt exerts a significant disciplinary effect on the managers.

We note, moreover, the absence of a significant relation between the management entrenchment and the characteristics of the board of directors. Several arguments

can be proposed to interpret this result. Firstly, the increase in the investments in R&D restricts the access of the administrators to information and gives the managers more authority vis-à-vis the shareholders. Secondly, the high number of administrators can generate conflicts and poses a problem of coordination and several difficulties to maintain good relations between the members, which affect the quality of the control exerted by the board of directors on the managers. This leads to reject the hypotheses H_{4a}, H_{4b} and H_{4c}, according to which the characteristics of the board of directors (size, independence and separation of the functions of CEO and chairman) exert an effective control on the managers.

We also note a positive relationship between the multinational character of the firm and the management entrenchment as measured by the seniority of the managers. However, the impact of the multinational character on the accruals is non-significant. The leaders diversify their investment to benefit from uncertainties characterizing the external environment of their organization. The investments which they maintain abroad are difficult to control because of the cultural differences and the linguistic difficulties that may face the controllers. Moreover, the costs of transfer of knowledge increase the difficulty to access to information about foreign activities. This seems to reinforce the capacity of the managers with respect to these actors and to increase their discretionary behavior.

Conclusion

This study examines the effectiveness of the control system imposed on the managers by confronting the assumptions of the theories of the agency, the incentives, and the management entrenchment. The effectiveness of the control systems seems to be influenced by the deviating behavior of the managers. Their statute offers them the capacity to make decisions affecting the shareholders wealth and the effectiveness of the control exerted by these later. The innovation and the (geographically) diversification help them to influence the quality of the control exerted by the board of directors and the financial intermediaries. The investment of the additional resources in R&D in geographically diversified units increases the investment risks and the informational asymmetry toward the partners of the company. It increases, consequently, the discretionary of the manager at the expense of the shareholders and prepares to a favorable ground to their opportunistic behavior.

However, the institutional investors have necessary competences to exert a more effective control on the managers. The diversity of the investments they carry out helps them to evaluate more efficiency the position and to ensure a more effective control.

The alignment of the compensation to the performance may solve the agency problems between shareholders and managers. It incites the later to make decisions which do not affect the shareholders wealth and which create more value.

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