Debt Management by Banks and Expansion of the Specific Investments : The French Experience

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Abstract

The paper analyze the impact of banks on the adoption of specific investment in French non-financial companies through board representation and ownership stakes. The theoretical principles suggest that the banks refuse the financing of this type of investment. Therefore, the level of banking debt has a negative effect on the specific investment. Our hypotheses suggest that this effect changes according to the contribution of bankers in the corporate governance system. The results obtained by a set of uni-varied parametric and non-parametric averages' comparison tests; along with multi-varied analyses (logistics) carried out on a sample including 176 French listed firms over a six-year-period (1998-2003) show a change in the behaviour of banks following a real implication in the corporate governance system. Moreover this behaviour depends on the technological degree that characterizes the activity of the firms.

I. Introduction

AT PRESENT, THE requirements of a growing competition (deregulation, opening of the markets, globalisation), the turbulence of the environment and the decreasing growth of several French firms impel managers to re-examine the missions of their companies, and to consider their policies of investment in specific assets[1].

The analysis of the characteristics of these specific investments, (R&D, innovating projects) in terms of risk, profitability, uncertainty, guarantee and transmitted information, raises several problems of bank financing. This type of investment is characterized by a significant risk and a long term profitability (Boot, 2000, Simerly and Li, 2000). Moreover, the

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informational contents of these investments do not prove to be very effective in terms of financial guarantees (Yafeh and Yosha, 2003). Indeed, the majority of the specific investments are subject to a meticulous examination of the bankers (Hoskisson and Turk, 1990). The high degree of specificity of the credits makes the evaluation of the investments more difficult for the bank, which implies that asymmetries of information will persist between the latter and the project carrier. In other words, the lack of knowledge of the current and future value of these investments increases the risk undergone by the bank and it explains its reluctance to finance this type of project.

Thus, from the point of view of the bank, the credits granted to the companies present more risks when the project to be financed is specific. This risk drives from a great probability of bankruptcy of the firm and consequently from a suspension of statement debt (Baysinger, Kosnik and Turk, 1991). Considering the problems of asymmetry of information, the banks are often brought to select the projects of investment which are rather traditional and not very specific. From the point of view of the company, Williamson (1988), within the framework of the theory of the costs of transaction, gave an explanation of the prudence of the firms concerning the financing of their specific projects by debts. Williamson, (1988) considered the means of financing as structures of governance regulating the relation between the firm and the contributors of financial funds. The debt is a structure of governance characterized by a control according to standardized rules. The debt contract, which specifies the payments of interests with regular intervals, subjects the firm to constraints of liquidity. Moreover, it obliges the firm to repay the borrowed funds and gives priority, in the case of liquidation, to the creditors. Unlike debts, the shareholder's equity allows more flexiblity of control. The assimilation of the various modes of financing to structures of governance allowed Williamson to stipulate that the most appropriate financing for specific investment is financing by owner's equity. The debt, on the contrary, is the least expensive solution for the financing of the projects of investment which lack specificity.

Whether from the point of view of the bank or that of the firm, it is obvious, that there is a discouragement to finance the specific investments by bank debts. However, this type of investment requires much funds which would oblige the companies to resort to banks. Likewise by the banks by establishing long term relations with the firms, bank may be obliged to be the driving force to develop strategies of investment in specific assets.

In order to propose an extension of this reasoning, we think that a participation of the banks in the capital and the board of directors of the borrowing firms can lead to a change in their behaviors and a different impact on the development of specific investment. This study aims at improving the understanding of the behavior of the bankers with respect to the strategy of development of specific investments when they are implied in the corporate governance system of French firms. Our main question would be to know whether the participation of the banks in the capital and the board of directors leads the banks to adopt the specific investments?

An affirmative answer would support the thesis that the banks are not always reluctant in financing these projects of investment. Moreover, that would consolidate the existence of new criteria (other than the repayment of interests and debts) which guide the banks in their strategy of financing the investments.

Although this type of research occupies an important place in corporate finance, few studies were carried out in France. To our knowledge, such a study has not been carried out yet in France and such a hypothesis has not been formulated.

Therefore, this research has got three objectives. The first consists in synthesizing the existing theories on the explanatory hypothesis of the degree of specificity of the investments. The second is an empirical validation, in the French context, of these hypotheses. The third is the comparison of the behaviors of the foreign and French banks. These objectives determine the structure of the article. The first part will be devoted to a synthesis of the theoretical positions toward the subject. The second part will present the methodology of the empirical validation. The third part will be a discussion of the results obtained with and without taking into consideration the technological development of the firm's sector. The conclusion will make it possible to contribute to the vast debate about caution in the adoption of conclusions resulting from the former studies in the French context.

II. Review of Literature and Hypotheses
2.1 *Effect of the level of debt*
Within the framework of the theory of the costs of transaction and according to Williamson (1988), the debt is a structure of governance consisting in a whole set of rigid rules. The latter stipulate payments of interests and a refunding of the capital as well as other contractual obligations. If one of these obligations is not respected, the lenders will liquidate the financed project asset. In the case of bankruptcy and subsequent liquidation, the firms with great proportions of specific assets undergo a larger loss in value compared to the other firms. Thus, the capacity of protection of the creditors against such assets is rather limited, which increases their costs of financing with debts (Rajan and Zingales, 1995; Shepherd, Oefek and Yermack, 1997).

The value of the asset is strongly dependent on its character redeployable. Thus, in order to reduce the costs of transaction, the debts should be associated with the projects of investments which lack specificity. The shareholders' equity, on the contrary, finance specific project and asset more flexibly. The investments presenting a high degree of specificity which reduces, in case of bankruptcy, their reassignments to other uses, would lead to a refusal of financing on the part of the banks (Hall, 2002). Beyond these problems, Shepherd, (2005) suggested that the banks avoid the financing of complex and specific projects because of informational access problems which they may meet while studying these investment projects.

On the empirical level (Balakrishnan and Fox, 1993; Vilasuso and Minkler[2], 2001; Hovakimian, Opler and Titman, 2001; Marion, 1994) found, in the American and French context, significant negative[3] correlation between the development of the specific investments and the level of debt of the companies.

Hypothesis H1: *A high level banking debt has a negative impact on the specific investments.*

2.1 *Incidence of the participation of the banks in the capital of the customer firms*

Seeing the problems encountered by the bank while financing specific projects (risky, long term, weak guarantee, asymmetry of information), several authors (Shepherd and al. ,2005; Lee, 2005) suggested that these problems will remain even if the banks are part of corporate governance mechanisms. According to the latter, although the banks participate in the capital of the customer firms, it remains reluctant vis-à-vis the promotion of specific investments. They postulated that there exists a negative relation between the participation of the banks in the capital and the intensity of investment in R&D. At the empirical level, the results are not conclusive. They vary from one context to another. If, in Japan, Lee (2005) found a positive correlation, in the American context, Berger, Miller, Petersen, Rajan and Stein, (2005) found a negative link. With regard to Europe, Berrone and Tribo (2005) claimed the existence of a negative bond for the Spanish companies.

Concerning France, this assumption, to our knowledge, hasn't been tested yet. We think that in the most widespread case, the banks seldom take part in the division of the value created except if they are shareholders. Thus it is possible that the situation and the behavior of the banks can be different while participating in the corporate governance system. According to Aoki (1990), the control exerted by the banks is one of the determining factors of the effectiveness of the Japanese firms. This control is reinforced by the fact that they are, also, principal shareholders. This characteristic of the Japanese firms constitutes, according to several researchers such as Nekhilii (1998), a convenient form of government for the developments of the specific investments. According to Lee and O' Neil (2003), the system of Japanese government is more appropriate to long-term and risky investments.

More explicitly, according to Dewatripont and Tirole (1994); and Rajan (1992), the problems encountered by the bank and the firm can be solved, even partially, if the lending bank holds a proportion of the capital of the firm. In this context, we suggest that the behavior of the banks and the impact they have on the decision of investment are a function of the nature of the financing (stockholders' equity or debt). In other words, if the financing of the company is simultaneously ensured by debt and stockholders' equity, the banks will be encouraged to control the leaders to preserve their interests as well as those of the shareholders and creditors. Consequently, the banks will behave like shareholders and will support the financing of the

immaterial investments. On the contrary, if the financing is ensured by debts, without participation in the capital, the banks will be more inclined towards the risks and will not seek to improve the performance of the long-term firms. The banks preserve, consequently, their behaviors of creditors: the refunding of debts remains their main objective. Within this framework, Park (2000) asserts that the participation of the banks in the capital of the firm reduces the agency costs between the two partners. Indeed, the participation of the banks in the capital increases their exposure to risk. Therefore, banks should encourage the firm to invest in innovating and immaterial projects.

Hypothesis H2: *The participation of the banks in the capital of the firm has a positive effect on the specific investments.*

2.3 *Impact of the participation of the banks in the board of directors of the customer firms*

In order to muster the effect of the participation of the banks in the system of decision and control of borrowing firms, it seems useful to study the effect of their participation in the board of directors of the customer firm. It is worth mentioning that the preceding studies gave importance only to the participation of the banks in the capital.

To build our assumption relating to the bank administrators, we start with the presentation of the advantages that the firm and the bank administrator can draw. First, the close connection with the bank which appears by its presence in the board of directors can generate a good information flow between the two entities, while it can help the bank to obtain the best contracts of financing (Stearns and Mizruchi, 1993; Byrd and Mizruchi, 2005). Secondly, being given the cost of the debt, the participation of the banks in the board of directors show that the firm is in securable position (a weak risk of financial distress). The bank foreshadows that the firm is in the state of financial equilibrium. This helps the decrease of financial charges. Dittmann, Maug and Schneider (2006) finds substantial evidence for the hypothesis that bankers on the board provide financial expertise: Bankers are more often involved in firms with high growth, high leverage, and low interest cover; and the presence of bankers increases future leverage.

According to Kroszner and Strahan (2000), the advantage of this participation will be more significant in huge companies which have the problem of asymmetry of information, a strong volatility of the benefits and a small proportion of tangible assets. Kroszner and Strahan (2001) worked out an empirical model which treats the relation between the characteristics of the firm and the presence of the banks in the board of directors. Among these characteristics, we find the proportion of the tangible and intangible assets. They found that the firms holding a small proportion of tangible assets find more difficulties to obtain external financing. They become more dependent on the banks and seek to establish close connections with them (Himmelberg and Morgon, 1996).

On the basis of these observations, we postulate that these costs and these problems can be solved, even partially, with the presence of the banks in the board of directors. The resolution of the problem becomes easier as the bank have more specific information on the company. The bank administrators can play the role of mediation and conciliation between the interests of the shareholders and those of the creditors and, consequently, support the company to finance its immaterial investments. Subsequently, we can formulate the following hypothesis:

Hypothesis: H3: *The banks occupying seats in the board of directors have a positive effect on the realization of the specific investments.*

III. Researsh Design
3.1 *Sample*

Our sample consists of all French listed firms appearing in the Worldscope database over the 1998-2003 year period. We exclude all financial and banking corporations (SIC codes 6000-6999) and regulated utilities (SIC codes 4900-4999). We exclude all firms with missing ownership and/or control data. We discard also firms with missing financial data and those with less than 6 years historical data. We restrict our analysis to followed firms (with at least one analyst). The companies for which the accounting information are incomplete or probably erroneous (report of abnormal variations) were eliminated from the first sample. In addition, the company which the number of months of financial year is different from 12 are withdrawn. The selection has reduced our sample to 176 industrial and commercial firms from different activity areas.

Three databases have been used (DIANE, WORLDSCOPE and DAFSA) to measure all the variables. The data of the corporate governance system are collected from the DAFSALIEN data base. This phase of data-collect was most difficult and required the construction of our own data base (manually)[4]. The data of the specific investment are collected from the DIANE and WORLSCOPE database.

Table I
Sample Distribution Across Industries

Industry	SIC Codes	Firm	Percentage of total
The Industry classification of the sample			
Petroleum	13, 29	12	6.81
Consumer durable	25, 30, 36, 37, 50, 55, 57	22	12.50
Basic Industry	10, 12, 14, 24, 26, 28, 33	18	10.22
Food & Tobacco	1, 2, 9, 20, 21, 54	20	11.36
Construction	15, 16, 17, 32, 52	24	13.63
Capital Goods	34, 35, 38	17	9.65
Transportation	40, 41, 42, 44, 45, 47	11	6.25
Textile and Trade	22, 23, 31, 51, 53, 56, 59	21	11.93
Services	72, 73, 75, 76, 80, 82, 87, 89	22	12.50
Leisure	27, 58, 70, 78, 79	9	5.11
Total		176	100.00

Table II
Sample Selection Procedure

	Observations
Number of firm in the Worldscope database (2003)	820
Subtract:	
Financial and Banking firms (SIC codes 6000-6999)	179
Regulated Utilities (SIC codes 4900-4999)	11
Firms with missing details of ownership and control structure	280
Firms with missing financial data or with less than 6 years historical data	174
Final sample	**176**

3.2 *Measurement of the Variables*

The empirical studies of the transaction cost and the concept of specific asset are numerous (Rindfleisch and Heide, 1997). But few which propose direct measurement for the specific asset.

Dumontier and Bah (1996), Balakrishnan and Fox (1993), consider as relevant the ratio "expenditure in R&D/total sales". In fact, the asset of firms which invest hardly in research and development are not very liquid because there are difficulties to evaluate by the financial market. The indicator generally used (the expenditure of research and development (R&D)) proves, in many points, largely insufficient. On the one hand, the accounting of the expenditure in R&D raised several controversies between the accounting systems in the world[5]. In other side, the specific investments aren't only fact of the research and development.

Table III
Definitions of Variables used in the Study

Variable Name	Description	
Dependents Variables		
Intangibles	INANG	Intangible assets / total assets
R&D	R&D	Research and Development expenditure / total sales
Corporate Governance Variables		
Bank in the board	BBD: Bank Dummy = 1 if one or more members of the company's supervisory board are classified as "Bankers PBD : Percent Bankers Number of "Bankers" in the supervisory board divided by Board size	
Bank Equity	PBC : Percentage of the capital held by the banks	
Long term debt not bondholders	DEBT : Total debt not bondholders / (total debt + common equity)	
Controlling Variable		
Size	Natural logarithm of total sales in thousands of Euros.	

We introduce the ratio (intangible asset/total asset), as criteria to measure the specific asset. For the governance variables, we use the flowing indicators. Like, Dittmann, Maug and Schneider (2006), we measure banks' influence on a company by three variables. The first is defined as Bank Dummy (BBD) and assumes a value of one if at least one member of the

supervisory board is a banker, and zero otherwise. The second variable to measure the influence of banks is Percent Bankers defined as the ratio of bankers to the total board (PBBD). The Third is the percentage of the capital held by the banks (PBC)[6].

Finally, in this study, debt (DEBT) is measured by the ratio of the financial long term debt not bond-holders /total asset. We chose the total asset like a denominator in order to neutralize the effect of size. Finally, the variable SIZE (log of sales) of company was introduced into the model. It is a variable of control.

Table IV
Descriptive Statistics for a Sample of Firms for the Years 1998 Through 2003

Variables	N	MEAN	S.D	Median	Min	Max
Intangible Asset/ Total Asset	176	0.285	0.195	0.126	0	0.573
% R&D/ total sales	176	0.824	2.582	0.214	0	14.541
% participation of the banks in the board of directors (PBBD)	176	0.685	1.471	0	0	16
% participation of the banks in the capital(PBC)	176	3.428	10.687	0	0	61.879
long term debt not bond-holders /total asset	176	19.488	10.284	17.127	2.751	71.814
SIZE : Log of sales	176	3.142	1.369	2.951	0.97	5.96

3.3 *Statistic and Methodology*

Our empirical study is based on unvaried test to compare the characteristic of the firms in the different sub-samples. We also use the logistic regressions. This objective of the empirical study is not to measure the impact of the explicative variables but to underline the general politics that explain the degree of specificity in investment in form of explicative variables combinations. In first time, we adopted OLS, but unfortunately this method gave a badly specified model. For this reason, we practised the Logistic regression. In the logistic analysis, the explained phenomena are presented by dichotomic[7] variable and not by the continued nature of the variables that measure them. The advantage of this method is that we can detect and eliminate the insignificant statements in the sample (Evrard, Pras and Roux, 1993). In addition the logistic regression, contrary to a discriminating analysis or OLS, is well adapted to our assumptions since it does not proceed in an additive but interactive mode. Consequently, the use of logistic regression is the most appropriate.

Concerning the unvaried test, if dependent variable present two modalities, it is possible to realise the test of student for a null value of difference of the means of the dependants variables (H_0 hypothesis) between two groups of firms. But if explicative variable is not normally[8] distributed, it's necessary to make non-parametric test of the different means (Martin, 1994). These tests are useful to know if the firms of the first group (which present a high level of specificity) present a significant difference with firms of the second group (weak level of specificity) per explicative variables categories.

IV. Results and Discussion

4.1 *Unvaried Analyses*

Tables V and VI present the results of unvaried analyses. They are the tests of the difference of averages between the endogenous variables for the two groups of companies (student test). We also, made use of the non parametric tests because the results of the tests of normality of the exogenous variables do not show, in the majority of the cases, a checking of the normality of the variables in each group of companies. The companies investing in highly specific assets have a debt ratio smaller than that of the companies investing in not very specific assets. This confirms, a priori, our theoretical prediction relating to the suspicion of the banks.

Contrary to what is envisaged, theoretically, it is clear that the participation of the banks in the capital does not have a significant positive effect on the development of the investments in specific assets. That can mean that the French banks were not transformed yet into true shareholders.

Table V
Results of Unvaried Analysis (R&D/Total Sales)

Variables	Observations	Mean	Average row	Tests
DEBT	$G_{0 = 88}$	M0=25.12	R0=106.25	t=2.35**
	$G_{1 = 88}$	M1=13.72	R1=70.48	z=1.76*
% PBC	$G_{0=88}$	M0=3.18	R0=81.24	t=1.10
	$G_{1=88}$	M1=3.67	R1=91.57	z=0.61
% PBD	$G_{0=88}$	M0=0.52	R0=98.16	t=1.23
	$G_{1=88}$	M1=0.85	R1=72.85	z=2.15**
SIZE	$G_{0=88}$	M0=2.01	R0=90.96	t=1.47
	$G_{1=88}$	M1=4.26	R1=81.59	z=0.26

Note: G_0: group which present a high level of specificity.
G_1: group which present a weak level of specificity
*, ** and *** denote statistical significance, at the 0.10, 0.05 and 0.01 levels, respectively. The t-statistic and z are for the significance of the differences between the means of the two groups. M and R are the average and the row of each sub sample.

Table VI
Results of Unvaried Analysis (Intangible Asset/Total Asset)

Variables	Observations	Mean	Average row	Test
DEBT	$G_{0 = 88}$	M0=22.89	R0=105.78	t=2.48**
	$G_{1 = 88}$	M1=16.06	R1=69.14	z=1.86*
% PBC	$G_{0=88}$	M0=3.47	R0=80.91	t=1.42
	$G_{1=88}$	M1=3.38	R1=89.14	z=0.92
% PBD	$G_{0=88}$	M0=0.59	R0=94.87	t=1.01
	$G_{1=88}$	M1=0.78	R1=80.58	z=2.36**
SIZE	$G_{0=88}$	M0=3.09	R0=92.69	t=1.23
	$G_{1=88}$	M1=3.21	R1=84.72	z=0.86

Note: G_0: group which present a high level of specificity.
G_1: group which present a weak level of specificity
*, ** and *** denote statistical significance, at the 0.10, 0.05 and 0.01 levels, respectively. The t-statistic and z are for the significance of the differences between the means of the two groups. M and R are the average and the row of each sub sample.

The results concerning the incidence of banks administrators show a positive association between the rate of participation of the bankers in the board of directors and the strategy of development of the specific investments. This result is significant, only, for the non-parametric test. Finally, the size of the company does not seem to have a significant influence on the degree of investment in specific assets for the two measurements and the two tests.

4.2 Multivariate Analyses

The logistic model of regression is used to test the hypotheses formulated on the relations enters, on the one hand, the debt, the shareholding of the banks, the administrators banking, and the degree of specificity of assets, on the other hand.

MODEL 1 (PBD and without interaction variable)

$$Y = \alpha + \alpha_1 LTD/TA + \alpha_2 PBC + \alpha_3 PBD + \alpha_4 log\_SALES + \xi$$

MODEL 2 (BBD and without interaction variable)

$$Y = \alpha + \alpha_1 LTD/TA + \alpha_2 PBC + \alpha_3 BBD + \alpha_4 log\_SALES + \xi$$

MODEL 3 (with interaction variable)

$$Y = \alpha + \alpha_1 LTD/TA + \alpha_2 PBC + \alpha_3 PBD + \alpha_4 INTERACTION + \alpha_5 log\_SALES + \xi$$

$Y = 0$, if the company invests weakly in the specific assets: the ratios R&D/total and intangible asset/total asset are lower than their medians.

$Y=1$, if the company invests strongly in the specific asset: the ratios R&D/total and intangible asset/total asset are higher than their medians.

INTERACTION: A binary variable which take 1 when there is a simultaneous presence of the banks in the capital and the board of directors of the firms customer and 0 in the opposite case).

LTD/TA: long term debt / total asset

PBC: % participation of the bank in capital

PBBD: % participation of the banks in the board of directors

BBD: Bank Dummy = 1 if one or more members of the company's supervisory board are classified as Bankers

log_SALES: decimal Log of sales

n=   176

The variable degree of specificity of the investments is a binary variable which take value 0 for the companies belonging to the sub sample (a weak rate of investment in the specific asset N = 88) and 1 for the companies of the group (high level of investment in specific assets N=88).

We carried out three series of regressions. First, in model 1, the degree of specificity was estimated according to the variables DEBT, PBC, PBD, and SIZE. In the second model, the variable BBD is introduced. In the third

model, the variable INTERACTION was added to the list of the exogenous variables (it is about a binary variable which takes 1 when there is a simultaneous presence of the banks in the capital and the board of directors of the firms and 0 in the opposite case). The models[9] were retained after several iterations because they formulate the best results of the tests of general validity. The global adjustment test implies the rejection of the null hypothesis stipulating that the coefficients are all null for the four regressions. The total rate of correct classification is higher than 75% for the ratio (intangible asset / total Asset) and ratio R&D/total sales. Therefore, the results of this test are satisfactory.

When the coefficient α_1 associated to the variable (DEBT) is negative, it is statistically significant. A level of high debt results in a great probability of penalization of the specific investments asset. This is coherent with the report of Balakrishnan and Fox (1993); Hall (2002); Vilasuso and Minkler (2001); Shepherd et. al. (2005) who showed the existence of a negative relation between the level of debt of the firm and its investments in specific assets. This result can be interpreted by the reluctance of the banks to finance these projects of investment taking into account the high degree of specificity which slows down and complicates their reassignments with other uses in the case of liquidation. The hypothesis H1 is consequently confirmed.

Table VII
Results of the Logit Models (Without Interaction Variable)

Variables	Theoretical Sign Waited	R&D/Total Sales	Intangible Asset/ Total Asset
DEBT	-	-0.018	-0.078
		(3.347)**	(2.984)*
PBC	+	-0.010	0.008
		(0.216)	(1.321)
PBD	+	1.261	1.847
		(2.956)**	(3.917)**
SIZE	-/+	0.011	0.026
INTERCEPT		0.311	-0.174
Model Chi-Square		11.268**	9.172*
Correctly Classified		81.3%	78.25%
R² Cox and Snell		0.069	0.086
Sample Size		0.171	169

Note: The WALD statistic is reported in parentheses.
          *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

We expected that the bank shareholders would tolerate the promotion of the projects of investment in specific assets. According to Tables (VII, VIII and IX), the coefficient (PCB), which symbolizes the percentage of the capital held by the banks, is not significant. It would seem that the bank shareholders oppose the financing of these projects although they are holders of a part of the capital. It is possible to interpret this report by the fact that the proportion of capital held by the banks is relatively insufficient to encourage them to alter their behaviours. Probably, as mentioned by Prowse (1990) and Park (2000), the bankers support the intangible investments only if the proportion of the capital stocks is at least equal to the proportion of the debt. We can

judge that the French banks haven't been transformed yet into true shareholders like their German and Japanese counterparts. We reaffirm, therefore, that the French shareholder-bankers are motivated to support and accept the investments in specific assets only if their participation includes a significant part as capital. Thus, we reject the hypothesis H2

Table VIII
Results of the Logit Models [Bank Dummy (BBD)]

Variables	Theoretical Sign Waited	R&D/Total Sales	Intangible Asset/ Total Asset
DEBT	-	-0.034	-0.054
		(3.874)**	(4.112)**
PBC	+	-0.059	0.021
		(0.443)	(1.094)
BBD	+	0.823	1.127
		(3.032)*	(3.154)*
SIZE	-/+	0.011	0.026
INTERCEPT		0.654	-0.953
Model Chi-Square		10.343**	8.762*
Correctly Classified		78.54%	73.22%
R² Cox and Snell		0.065	0.062
Sample Size		170	168

Note: The WALD statistic is reported in parentheses.
         *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

In relation to hypothesis H3, the results show that the more presence of the bankers in the board of directors, the less reluctant they are to finance the investments in specific assets. Indeed, the coefficient relating to variable (PBD and BBD) is positive and significant with the threshold of 10%. This result can support the claim of complementarity of the mechanisms of governance (shareholder-banker and administrator-banker). Thus, we confirm the hypothesis H3.

TableIX
Results of the Logit Models (with Interaction Variable)

Variables	Theoretical Sign Waited	R&D/Total Sales	Intangible Asset/ Total Asset
DEBT	-	-0.014	-0.096
		(4.125)**	(3.014)*
PBC	+	0.014	0.017
		(0.216)	(0.987)
PBD	+	1.894	1.023
		(2.681)*	(1.041)
INTERACTION	+	1.984	1.038
		(1.078)	(4.814)***
SIZE	-/+	0.005	-0.006
INTERCEPT		0.526	-0.153
Model Chi-Square		11.781**	12.693**
Correctly Classified		77.69%	80.4%
R² Cox and Snell		0.071	0.096
Sample Size		174	173

Note: The WALD statistic is reported in parentheses.
         *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

According to the second model (Table IX), we note that the representative factor of the weight of the bankers (Interaction) is positively correlated with the probability of opting for specific investments. However, the result is not significant for the ratio R&D/total sales. Therefore, we cannot confirm, in an irrevocable way, that the participation of the banks in the mechanisms of decision and control increases the probability of accepting this kind of projects. Apparently the French administrators and shareholder-bankers can not appropriately ensure their role of mediation and conciliation between the interests of the shareholders and those of the creditors.

4.3 *Analysis of Sensitivity of the Results*
4.3.1 *Objective of the Segmentation*

It would be relatively simplistic to be limited to the influence of the administrator and shareholder bank's debt level on the level of development of the specific investments without considering the firm's industry branch. We are interested in the industry branch role for two major reasons. First, we can wonder whether the differences noted between the companies as regards to immaterial investment cannot be attributed to the branch of industry. Then, it appears judicious to study the explanatory capacity of the exogenous variables by branch of industry. Indeed, the models previously tested could be valid for the specific investments of the pharmaceutical companies (high technological intensity) but would not apply to the transport sector (lower technological intensity). This control variable is not introduced, directly, as an explanatory variable in the model. It is rather used as a binary variable being used to segment our initial sample into two sub samples. To obtain more reliability at the level of the results, we have voluntarily divided our sample with the clearly definite companies like companies with high technological intensity or low technological intensity as identified by the CEPII[10].

4.3.2 *Impact of the Technological Intensity of the Sector*

Considering the results of the regressions directed to each of the two categories of firms (high technology and low technology), as a whole the explanatory capacity of the models has clearly changed compared to the results of the analysis relating to the total sample whatever measurements of specificities used might be. The models show a good explanatory capacity in the companies of low technology compared to the companies of high technology. This can be explained by specificities of the companies of high technology which prevent the banker-administrators and shareholders to play their roles in promoting this type of projects. The regression results estimated on the two groups of firms are close to the results found on the total sample. The difference is, mainly, at two levels (Tables X and XI).

First, although for the two groups of firms (low technology and high technology) the debt is, negatively, correlated with the probability of development of the specific investments (the result being similar to that observed for all the firms), it would have to be noted that it is in the firms of low technology that this negative effect is more intense. This emphasis of

the negative relation in low technology firms corroborates and supports Williamson thesis within the framework of the theory cost transaction. Indeed, as the theory of the costs of transaction mentions, the companies having a strong degree of specificity (generally highly technological) are involved in debt less than the other companies[11].

Second, with regard to the variable "participation of the banks in the board of directors", the signs are, also, sensitive to the technological intensity level. This variable is significant in the low technology firms, whereas it is not significant in the high technology firms. This result can be explained by the fact that the role played by the administrator-bankers, "of mediation, certification and encouragement of the companies to invest in the specific asset", is more substantial in the firms of low technology[12].

Table X
Results of the Logit Models in Low Technology Firms

Variables	Theoretical Sign Waited	R&D/Total Sales	Intangible Assets/ Total Asset
DEBT	-	-0.074	-0.026
		(5.951)***	(4.514)**
PBC	+	-0.014	0.097
		(1.452)	(1.897)
PBD	+	0.891	1.174
		(2.846)*	(3.092)*
SIZE	-/+	0.013	-0.017
INTERCEPT		0.289	-0.108
Model Chi-Square		8.812*	7.963*
Correctly Classified		76%	72%
R^2 Cox and Snell		0.092	0.089
Sample Size		91	89

Note: The WALD statistic is reported in parentheses.
          *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Table XI
Results of the Logit Models in High Technology Firms

Variables	Theoretical Sign Waited	R&D/Total Sales	Intangible Asset/ Total Asset
DEBT	-	-0.056	-0.013
		(2.844)*	(4.459)***
PBC	+	-0.016	0.011
		(0.692)	(0.987)
PBBD	+	1.369	0.984
		(1.631)	(1.108)
SIZE	-/+	0.008	-0.006
INTERCEPT		0.147	0.192
Model Chi-Square		6.934	7.264
Correctly Classified		62%	68%
R^2 Cox and Snell		0.062	0.069
Sample Size		83	80

Note: The WALD statistic is reported in parentheses.
          *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Like any research work, this one presents some limits. First, the percentage of the capital held by the banks does not correspond to the percentage of the voting rights. This information is available for the American companies, but it doesn't exist for the French companies (during the studied time). Second, the choice of measurements of the degree of specificity of assets is undoubtedly to be refined. The will to retain the variables used by the preceding studies to support the comparison of the findings resulted in reproducing the defects of these studies. These limits should not however dissimulate the several contextual results and news which were obtained. Indeed, the studies relating to this subject are rare on the French market whereas the specific investments are key elements of the performance, innovation and competitiveness of the firms. The originality of the step selected is not due solely to the revision operated on certain hypotheses already tested in the Anglo-Saxon context, but especially to the simultaneous taking into account of several relations which also integrate the power of the banks occupying seats in the board of directors of the French firms.

V. Conclusion

This article provides and checks hypotheses about the relation between debt, participation of the banks in the capital and the board of directors, and the degree of development of specific investments.

The empirical examination in the French context offers an interesting framework insofar as the institutional environment (hybrid system of governance) differs from the preceding studies made in the Anglo-Saxon (system of governance directed to markets) or Germane Nippon (system of governance directed to banks) context. This article contributes to the existing literature by proposing on the one hand a lighting on the motivations, perceptions and the behaviors of the banks in french context, and on the other hand by offering the opportunity of confronting the earlier results with those of this study, and thus to seek to identify some conformity whatever the context of the studies.

Generally, a high debt level has a negative effect on the adoption of specific projects (confirmation of the banks reluctance theory and the hypothesis of reserve of the banks and the transaction cost theory in the French context).

Although a participation of the banks in the capital of the firms normally lead a change of their behavior and to a more significant tolerance vis-à-vis the specific projects, we have noted that this does not seem the case of the French banks.

Indeed, these banker-shareholders develop a behavior similar to the creditors marked by a relative mistrust opposite these investments. However, the presence of the banks in the board of directors of the customer firm has a relatively positive effect on the adoption of this type of investment.

In addition, the results of the logistic regressions according to the contextual variable (technological intensity of the branch of industry of the firm) show that it is rather in the low technology firms that the negative effect of the debt increase on the probability of choice of the specific

investments is strongest. The model has a more significant explanatory capacity when it is applied to the low technology firms.

Finally, this article brings a first series of answers to the impact of the bank involvement in the corporate governance system in the French context and on the development of specific projects. As a prolongation of this work, we could, for example, on a more significant sample, on a more recent period of study and by modifying the approximations used for the operationnalisation of certain variables, study the determinants of the investment specificity degree within the framework of the governance of the French companies.

Notes

1. Asset Specificity refers to the relative lack of transferability of assets intended for use in a given transaction to other uses. Highly specific assets represent sunk costs that have relatively little value beyond their use in the context of a specific transaction. Williamson has suggested six main types of asset specificity: site specificity, physical asset specificity, human asset specificity, brand names, dedicated assets temporal specificity. High asset specificity requires strong contracts or internalization to combat the threat of opportunism. Important example: Small subcontractors locating and investing next to only customer who could potentially turn to alternative suppliers.
2. These authors used the ratio (expenditure in advertising/sales total) like measuring criterion of the immaterial investments.
3. Contrary to the evoked arguments, Anderson and Prezas (1999) developed a model of research which supports that the financing by debt can contribute to the encouragement of the intangible investments. In spite of the normative character of the approach of these two authors, we find useful to proclaim their point of view.
4. Possible errors of transcription and calculation.
5. These investments obligatorily passed to the charges in the United States. While France continuous to offer alternatives of treatment of these investments between their passage in charges or asset
6. In the absence of precise information on the voting rights of the shareholders in French firms, one will adopt the same method of Alexandre and Paquerot (2000) "French context": voting rights is attached to each action.
7. Unfortunately, there will be a great risk to lose information while passing from a continuous variable (even if it is truncated) to a binary variable. We use the median criteria to segment the sample.
8. This assumption was not checked in our sample. For this reason, we will resort to non-parametric tests.
9. The regressions were established after control of the possible correlations between the explanatory variables. Indeed, the application of the logistic regression requires the absence of multi-colinearity between the exogenous variables. There is no evidence of serious multi-collinearity among the independent variables.
10. Because of the construction of the data bases available, in French, the center of exploratory studies and international information proceeded to a rewriting of the nomenclature of the CEPII which is expressed in terms of products in a nomenclature of activities in order to be able to use the French nomenclature of activities (NAF). The activities selected as well as possible to approach the sector of the high technology are thus the following ones: Chemical industry of high technology, pharmaceutical industry, electric Industry of high technology and medical Industry of high technology.
11. This assumption is not confirmed in a significant way in our sample. The companies of low technology have a level of higher debt compared to the companies of high technology but the difference is not significant. So it is necessary to be careful in the interpretation of this result.
12. It is probable that in low technology firms, there is less of risk of conflict of interests, of information asymmetry and opportunism compared to the firms of high technology.

References

Alexandre, H. and M. Paquerot, (2000), "Efficacité des Structures de Contrôle et Enracinement des Dirigeants", *Finance Contrôle Stratégie*, Vol. 3, No. 2, June 2000, pp. 5-29.

Anderson, M. and A.P. Prezas, (1999), "Intangible Investment, Debt Financing and Managerial Incentives", *Journal of Economics and Business*, Vol 51, 1999, pp. 3-19.

Aoki, M., (1990), "Toward an Economic Model of the Japanese Firm", *Journal of Economic Literature*, Vol 28, No. 1, 1990, pp. 1-27.

Balakrishnan, S. and I. Fox, (1993), "Asset Specificity, Firm Heterogeneity and Capital Structure", *Strategic Management Journal*, Vol. 14, 1993, pp. 3-16.

Baysinger, B. D., R.D. Kosnik, and T.A. Turk, (1991), "Effects of Board and Ownership Structure on Corporate R&D Strategy", *Academy of Management Journal*, Vol. 34, No. 1, 1991, pp. 205-214.

Berger, N. A., H.N. Miller, M.A. Petersen, R.G. Rajan and J. C. Stein, (2005), "Does Function Follow Organizational form? Evidence from the Lending Practices of Large and Small Banks", *Journal of Financial Economics*, Vol. 76, No. 2, 2005, pp. 237-269.

Berger, P.G, E. Ofek and D.L. Yermack, (1997), "Managerial Entrenchment and Capital Structure Decisions", *The Journal of Finance*, September 1997, pp. 1411-1438.

Berrone.P, J. Surroca, and J.A. Tribo, (2005), "The Influence of Blockholders on Investments Intensity: Evidence from Spain", forthcoming in the *Journal of Corporate Ownership* and *Control*, 2005.

Boot, A. W. A., (2000), "Relationship Banking: What Do We Know? ", *Journal of Financial Intermediation*, Vol. 9, 2000, pp. 7-25.

Byrd, D. T., and M.S. Mizruchi, (2005),"*Bankers on the Board and the Debt Ratio of Firms*", *Journal of Corporate Finance*, Vol. 11, 2005, pp. 129-173.

Dewatripont, M. and J. Tirole, (1994), "A Theory of Debt and Equity: Diversity of Securities and Manager-Shareholder Congruence", *Quarterly Journal of Economics*, Vol. 109, 1994, pp. 1027-1054.

Dittmann, I., E. Maug and C. Schneider, (2006), "Bankers on the Boards of German Firms: Causes and Consequences," Paper Series In Economics and Management German Economic Association of Business Administration – Geaba, University of Mannheim, 2006.

Dumontier, P. and R. Bah, (1996), "Spécificité de l'actif et Structure du Capital de l'entreprise", *Banques et Marchés*, Vol 23, July-August 1996, pp. 28-36.

Evrard, Y., B. Pras and E. Roux, (1993), "*Market : Etudes et Recherches en Marketing : Fondements et Méthodes*, Dunod, 1993.

Hall, B.H., (2002), "The Financing of Research and Development", *Oxford Review of Economic Policy*, Vol. 18, No. 1, 2002, pp. 35-51.

Himmelberg, P. and P. Morgon, (1996), "*Is Bank Lending Special?*", in Is Bank Lending Important for the Transmission of Monetary Policy in Kroszner, R. and E. Pliyie, (2001), NBER 8694, 1996.

Hoskisson, R E. and T. Turk, (1990), "Corporate Restructuring: Governance and Control Limits of the Internal Capital Market", *Academy of Management Review*, Vol. 15, No. 3, 1990, pp. 459-477.

Hovakimian, A., T. Opler and S. Titman, (2001), "The Debt-Equity Choice", *Journal of Financial and Quantitative Analysis*, Vol. 36, 2001, pp. 1-24.

Kroszner, R. S. and P.E. Strahan, (2000), *"Banker on Boards: Monitoring, Conflicts of Interest and Lender Liability"*, NBER 7319, 2000.

Kroszner R. S .and P.E. Strahan, (2001), *"Board Connections and Conflicts Bank Lending"*, NBER 8694, 2001.

Lee, P. G., (2005), "A Comparison of Ownership Structures and Innovations of US and Japanese Firms", *Managerial and Decision Economics*, Vol 26, 2005, pp. 39-50.

Lee, P. G., and H.N. O'Neil, (2003), "Ownership Structures and R&D Investments of U.S. and Japanese Firms: Agency and Stewardship Perspectives", *Academy of Management Journal*, Vol 46, No. 2, 2003, pp. 212-225.

Marion, A., (1994), "Le financement de l'actif immatériel des entreprises technologiques innovantes", *Papier de Recherche IAE Lyon URA*, No. 13, 1994, pp. 1-34.

Martin, L., (1994), " *Analyse et traitement de données avec SPSS"*, Les éditions de SMG, Québec, 1994.

Nekhili, M., (1998), "Le mode de gouvernement des entreprises japonaises : un modèle à suivre", *Finance Contrôle Stratégie*, Vol. 1, No. 4, 1998, pp. 137 -165.

Park, S., (2000), "Effect of the Affiliation of Banking and Commerce on the Firm's Investment and the Bank's Risk", *Journal of Banking and Finance*, Vol. 24, 2000, pp. 1629-1650.

Prowse, S.D., (1990), "Institutional Investment Patterns and Corporate Financial Behavior in the United States and Japan", *Journal of Financial Economics*, Vol. 27, 1990, pp. 43-66.

Rajan, R. and L. Zingales, (1995), "What Do We Know about Capital Structure ? Some Evidence from International Data", *Journal of Finance*, Vol 50, 1995, pp. 1421-1460.

Rajan, R., (1992), *"A Theory of the Cost and Benefits of Universal Banking"*, Center for Research in Security Prices Working paper No. 346, Uuniversity of Chicago, 1992.

Rindfleisch, A. and J.B. Heide, (1997), "Transaction Cost Analysis: Past, Present, and Future Applications", *Journal of Marketing*, Vol. 61, October 1997, pp. 30-54.

Simerly, R L and M. Li, (2000), "Market Dynamism, Capital Structure and Performance: A Theoretical Integration and an Empirical Test", *Strategic Management Journal*, Vol. 21, 2000, pp. 31-49.

Stearns, L.B and M. Mizruchi, (1993), "Board Composition and Corporate Financing: The Impact of Financial Institution Representative on Borrowing", *Academy of management journal*, Vol 36, No. 3, 1993, pp. 603-618.

Vilasuso,J. and A. Minkler, (2001), "Agency Cost, Asset Specificity, and the Capital Structure of the Firm", *Journal of Economic Behavior and Organization*, Vol. 44, 2001, pp. 55-69.

Williamson, O.E, (1988), "Corporate Finance and Corporate Governance", *The Journal of Finance,* Juliet, 1988, pp. 567-591.

Yafeh, Y., and O. Yosha, (2003), "Large Shareholders and Banks: Who Monitors and how? ", *The Economic Journal*, Vol. 113, 2003, pp. 128-146.