THE IMPACT OF LBOS ON INVESTMENT POLICIES AND OPERATIONS OF ACQUIRED FRENCH FIRMS

Philippe Desbrières[*]*, Alain Schatt*[**]

Abstract

This paper evaluates the extent that French LBO targets' investment policy and operations can account for their overperformance discrepancy. Our empirical study has been carried out on 132 French LBOs between 1989 and 1994. The results show that the abnormal plunge in economic return cannot be explained by overinvestments or by inefficient working capital management. Nevertheless, abnormal increases in wages, supplies and/or sales price reductions appear to be prominent.

Keywords: Leveraged buy-out, performance, investment policy, operations

Introduction

In the past two decades, the acquisition of companies through *leveraged buy-outs* (LBO), has proliferated in the USA and Europe. These transactions enable the initiators (venture capitalists, executives etc.) to control a corporation with minimal contributions in equity.

Leveraged buyouts purportedly create a positive transformation in the organizational structure and in the contractual relations between managers and financiers. The use of borrowing packages, the concentration of shares in managers' hands and the control exercised by venture capitalists jointly create multiple incentives to manage the firm with a view to creation of value (Jensen 1989). Therefore, when the bought out firms are listed, the stock market anticipates a growth in share value.[1]

Numerous empirical studies have analyzed the effects of LBOs on the performance and organizational structure of acquired firms in the USA and UK. They conclude that after the LBO, these companies outperform firms in the same sector. This result is linked to several factors: reduction of conflicts of interest caused by the increase in debt level and the grouping of the ownership and decision-making functions, new organizational, strategic, technological and commercial choices, compensation for poor past performance, transfer of wealth from lenders to LBO initiators, tax gains and termination of implicit contracts.

Desbrières and Schatt (2002) obtained highly atypical results for France. They show that if companies acquired in LBOs are more profitable and less risky than their counterparts in the same sector of activity, both before and after the transaction, the indicators studied deteriorate significantly after the transaction. The results obtained for French *buy-outs* therefore do not corroborate those obtained in the US and UK. In the United States, most LBOs originate from divestitures of subsidiaries in industrial groups, and reflect an organizational problematic. Although studied extensively, LBOs

[*] Philippe Desbrières is Professor of financial studies at the Université de Bourgogne, France. Address for correspondence: Institut d'Administration des Entreprises, Université de Bourgogne, BP 26611, 21066 Dijon, France. E-mail : Philippe.Desbrieres@u-bourgogne.fr.

[**] Alain Schatt is Associate Professor of accountancy and finance at the Université de Franche Comté, France, and Visiting Professor at HEC Montréal, Canada. Address for correspondence: Université de Franche-Comté, UFR SJEPG, Avenue de l'observatoire, 25030 Besançon cedex, France. E-mail : alain.schatt@univ-fcomte.fr.

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[1] .Many studies report abnormal positive returns (from 17% to 25%) following the announcement of an LBO and the total average gain (real purchase price – value of shares before announcement), adjusted by market movements ultimately ranges from 30% to 37% (Desbrières and Schatt 2002).

concerning listed companies, which are subject to market control, are by far in the minority. In France, LBOs are mainly used in a context of transmission of family-run companies, and to a lesser extent during divestment within groups.

This article attempts to explain the sources of deterioration of the overperformance of French firms that were involved in LBOs, notably with regard to the investment policy and operational management of these companies, along with the distribution of wealth among the various stakeholders (shareholders, employees, customers, suppliers). The study examines LBOs as a whole and by differentiating the sample by the origin of the transaction. The first section of this paper presents the theoretical framework of the research. The second and third sections describe the sample of LBOs studied and the methodology used. The empirical results are presented and analyzed in the fourth section.

1. Theoretical framework

Jensen (1989) maintains that firms involved in LBOs face fewer problems of management incentives and control than other companies, especially those that operate in low-growth or no-growth sectors. Factors related to borrowing packages, manager shareholding and control by venture capitalists jointly create multiple incentives to manage the firm with a view to create value. Therefore, the performance of firms is expected to grow significantly after an LBO, relative to the performance in their sector of activity overall. Desbrières and Schatt (2002) report results for France that differ from those obtained by US and UK studies: if French firms have a greater economic profitability and higher margin ratios and are less risky than firms belonging to the same sector, both before and after the LBO, yet the indicators studied deteriorate significantly after the transaction.

Several contrasting theories can be put forth to explain the reduction in "overperformance" of French firms involved in LBOs, notably with regard to economic profitability. First, numerous empirical studies have shown the incentive character of these transactions, arising from the high debt level in LBO packages[2] and the concentration of shares in managers' hands.[3] Therefore, investments carried out by managers may trigger instantaneous growth of assets that is disproportionate with the accounting measure of the wealth created, which is recorded only over the longer term. In other words, because of the investments carried out, the assets of these firms increase more quickly than the wealth created by the operating cycle, which thus leads to a mechanical reduction of the economic profitability indicators over the short and medium terms. Hence the following hypothesis:

H1: After the LBO, investments made by acquired firms exceed those made by other companies in the same sector

Moreover, in France, the LBO problematics differ significantly depending on whether the context is that of transmission of a family-run company or the disposal of a subsidiary of a group. In the first case, the challenge is not uniquely to organize the transfer of the property, but to ensure the succession of the company founder. Here, the LBO is more risky as the human capital contributed by the historical manager is specific to the firm. This resource, largely tacit and implying learning, becomes less transferable or rapidly duplicable as its level of specificity rises (Castagnias and Helfat 2001).[4] The risk related to the loss of specific human capital is greater when the company sold is not very complex,[5] because in this case the specific information is held by the owner-manager, who, to increase efficiency, carries out the decision making and control functions (Fama and Jensen 1983). Therefore, the transaction weakens the position of the buyers of family-run companies, especially when they are external to the company (case of *leveraged management buy-ins)* or when the founder has not made an effort to delegate the specific information and associated decision making rights to the internal buyers. In the second case, divestment via LBOs represents a solution to problems posed

[2] . See Jensen (1986), Baker and Wruck (1989), Phan and Hill (1995).

[3] . See Jensen (1986), Thompson, Wright and Robbie (1989), Baker and Wruck (1989), Muscarella and Vetsuypens (1990), Wright, Thompson and Robbie (1992), Phan and Hill (1995).

[4] . These authors propose the following hierarchy of the degree of specificity of human capital: generic, industry related, industry specific, firm specific.

[5] . An organization is complex when specific information (required for decision making and transmitted at a high cost) is held by numerous agents (Fama and Jensen 1983). In this context, it is more efficient to delegate decision making to the people that hold this information (Jensen and Meckling 1992).

by the integration of the activity concerned within a group structure.[6] The transaction should enable the managers of the entity thus freed from the organizational, strategic and financial constraints of its former group to correct the dysfunctional control mechanisms or to adapt new, more efficient ones (Hite and Vetsuypens 1989). The positive consequences of this divestment should magnify when the LBO involves the historical manager of the subsidiary, who holds the information required for decision making, and when the transaction does not necessitate the transfer or acquisition of specific managerial capital. Therefore, beyond the developments that lead to formulation of hypothesis H1 for all French firms involved in LBOs, the increase in performance of former subsidiaries, after the transaction, relative to that observed in their sector, should be greater than that of family-run firms. This assumption is consistent with Desbrières and Schatt (2002): former subsidiaries experience a lesser reduction in economic profitability, their general liquidity deteriorates less and their financial debt level is more stable. Consequently, if hypothesis H1 is validated, the investment program of former subsidiaries and divisions should be smaller than that of family-run companies.

H2: After the LBO, overinvestments in former subsidiaries of groups are less than those observed in family businesses

The second explanation for the abnormal reduction in the overperformance of acquired firms concerns losses in productivity originating from a poorer control of operational management. First, the LBO may trigger a rupture in implicit contracts between the target firm and some of its operating partners (Ippolito and James 1992). The bought out company may then incur increased procurement costs, or loose customers even after a reduction of its sales prices. In all cases, an abnormal reduction in the rate of value added[7] of the firms bought out will result.

H3: The value added rate of firms involved in LBOs rises less than that of other companies in the same sector

As mentioned above, the LBO is more risky for a family-run company, notably because it tends to lose all or part of the specific human capital of its historical manager. Several authors have demonstrated that the social or relational capital of the manager, notably created through the close relations that he has developed and maintained with key suppliers and customers, play an important role in the continuity of the organization (Adler and Kwon 2002). Accordingly, the departure of the owner-manager and the resulting total or partial destruction of these ties and networks may affect the performance of the family-run corporation bought out. Given the difficulty in transmitting or rapidly duplicating the human capital and the social/relational capital of the historical manager of family-run firms, the increase in the value added rate in former subsidiaries after the LBO, relative to that observed in the sector as a whole, should be less than that of family-run firms.

H4: After the LBO, the abnormal change in the value added rate is less negative for former subsidiaries of groups than for family-run firms

In addition, the deterioration in the relative performance of firms involved in LBOs may originate, again owing to the specificity of resources in human capital and social capital contributed by the LBO initiators relative to that of the historical managers, from less efficient financial management of the operating cycle that produces an abnormal increase in working capital requirements (WCR), driven by an increase in inventory and trade debt and a reduction in trade credit, along with an increase in the labor cost.

H5: After the LBO, the WCR and its components increase more sharply in acquired firms than in other companies in the same sector
H6: After the LBO, the cost of labor increases more sharply in acquired firms than in other companies in the same sector

A validation of the two hypotheses above would reveal the sharing of wealth among customers, suppliers and employees, to the detriment of shareholders, as the relative financial performance of companies bought out deteriorates after the LBO. We will again differentiate the nature of French

[6] . Dysfunction of internal capital and labor markets, development of deviant behaviors in contractual relations between shareholders, managers, employees, etc. (Denning 1988).

[7] . Difference between sales and the cost of materials and services used.

LBOs. Considering previous findings and arguments that emphasize the superiority of former subsidiaries of groups over family-run companies, we can formulate the following hypotheses:

H7: After the LBO, owing to changes in its components, the WCR increases less sharply in former subsidiaries than in family-run firms
H8: After the LBO, the labor cost increases less sharply in former subsidiaries of groups than in family-run firms

2. Sample

Our empirical study is performed on a sample of 132 LBOs that took place in France from 1989 to 1994. The choice of this particular period was dictated by the French LBO market's being nonexistent before 1985 and the collection of accounting information (unavailable before 1986 on CD ROM) before and after the transaction. Nonetheless, both the size of the sample and the calculation window of the variations in the indicators are very satisfactory compared with those used in the US and UK studies.[8]

The firms studied account for only 45% of the sectors of activity inventoried in France,[9] with the three most frequent (metalworking; printing and publishing; buildings and civil engineering) covering 22% of the observations (this figure rises to 50% and 65% depending on whether the 9 or 14 most representative sectors of activity are analyzed). We therefore note a sectoral concentration of French LBOs. This finding runs counter to Ambrose and Winters (1992), who did not find a significant sectoral effect for LBOs in the United States.

Table 1. Sample description

Year	Group subsidiaries	Family businesses	Total
1989	4	19	23
1990	7	20	27
1991	6	12	18
1992	7	9	16
1993	8	13	21
1994	10	17	27
Total	42	90	132

The first sub-sample is less than half the size of the second. This phenomenon is due to the structure of the French LBO market which is largely represented by family hand-on cares (Desbrières and Schatt 2002) and the fact that we could include divestments only when the entities sold were historically subsidiaries of groups, or divisions converted to companies long enough in the past for the corporate accounts to be available to us.

Table 2. Size of firms acquired one year before LBO (thousands of French Francs)

		Family run firms	Group subsidiaries	Total
Sales	Mean	161 430	231 337	183 673
	σ	384 456	271 400	353 941
	median	65 246	159 837	74 529
	minimum	6 443	16 638	6 443
	maximum	3 425 583	1 264 242	3 425 583
Total net Assets	Mean	99 134	192 720	128 911
	σ	268 861	239 642	236 550
	median	39 485	103 491	47 951
	minimum	1 633	9 733	1 633
	maximum	2 452 557	993 019	2 452 557

[8] . For example, they are equal to: 110 and (0, +3) in Kitching (1989); 37 and (-1, +2) in Kaplan (1989); 35 and (variable) in Muscarella and Vetsuypens (1990); 37 and (-1, +2) in Smith (1990); 42 and (-1, +2) in Opler (1992); 66 and (-1, +2) in Kaplan and Stein (1993) respectively.

[9] . Calculation based on APE classification with 2 digits, which includes 99 sectors of activity.

Our sample encompasses operations of a wide range of sizes. The firms studied have sales of between 6.4 million and 3.4 billion French Francs, with the book value of their assets ranging from 1.6 million to 2.4 billion French Francs. This dispersion is greater among family-run companies than group subsidiaries. In addition, the family businesses studied are significantly smaller than the group subsidiaries (Mann-Whitney test significant at 1% for both indicators). The lack of homogeneity in the size of firms in our sample can be considered as a weakness. However, ensuring such homogeneity would have led us to retain only a particular type of LBO. As a result, differentiating the results according to the nature of the transaction results in more homogeneous sub-groups of size.

3. Methodology

To test the hypotheses presented in Section 1, we must first define the variables that characterize the investment policy and operational management of firms involved in LBOs. Most indicators retained for this study are commonly used in financial statement analysis. The data used to calculate these indicators originate from the *Diane* CD ROMs, which supply company accounts. Each variable was calculated over 5 years, from t-2 to t+2, with t being the calendar year of the LBO. We have made the traditional adjustments to financing by leasing and unmatured bills of exchange.

Table 3. Indicators and their measures

Indicators	Measures
Investment Policy	EA = Economic Assets* TA = Total Assets* FinA = Financial Assets* FinA/FA = Financial Assets* / Fixed Assets** NFA/GFA= Net Fixed Assets / Gross Fixed Assets
Operational Management	S = Sales WCR = Working Capital Requirement** IP = Inventory period CP = Collection Period CPP = Creditors' Payments Period VA/S = Value Added/Sales W = Wages W/VA = Wages/Value Added

* EA = Equity + Financial debt; ** Gross amounts

Two series of tests were performed on these variables. The first is intended to determine for each of the four years surrounding the transaction, the extent that the characteristics of acquired firms differ from those of other companies in the same sector of activity. The second series of tests was performed on variations of indicators to measure the changes in the investment policy and operational management of firms acquired, compared with other companies in their sector. These variations were calculated on different windows surrounding the LBO.

The degree of statistical significance of the deviations, for each indicator, between firms and their sector is determined by means of parametric (Student) and non-parametric (Wilcoxon) tests performed on centered and reduced Y_{is} variables for the first tests on static data and ΔY_{is} for the second set of tests on variations of variables, with:

$$Y_{is} = (x_i - m_s)/\sigma_s \quad \text{and} \quad \Delta Y_{is} = (\Delta x_i - m_{\Delta s})/\sigma_{\Delta s}$$

x_i = value of the indicator for company i studied;

s = sector of activity of company i;

m_s (σ_s) = mean (standard deviation) of variable x for the sector of activity;

$m_{\Delta s}$ ($\sigma_{\Delta s}$) = mean (standard deviation) variation of indicator x for the sector.

For both static and dynamic data, the tests were performed on the total sample and on the two sub-samples. To test the sensitivity of the results that underlie French LBOs (transmission of family

firms or divestment of subsidiaries), we also studied the differences between these two groups of observations (with Student and Mann-Whitney tests). [10]

4. Results

In the presentation of our results we differentiate two groups of indicators - investment policy and operational management - in the total sample and the two sub-samples. Two series of results are presented according to whether we evaluate, before and after the LBO, static data (even-numbered tables of results) and dynamic data (odd-numbered tables). For greater coherence, we present the centered and reduced variables Y_{is} and ΔY_{is} on which the parametric (t) and non-parametric (Z) tests were performed. To reduce clutter, we report only the statistically significant results.

4.1. Investment policy of French companies involved in LBOs

The statistics in Table 4 indicate on average, companies targeted in LBOs have a larger size (EA & TA) than comparable companies in the same sector of activity, both before and after the transaction.

Table 4. Static statistics on the total sample and on subgroups

			t-2	t-1	t+1	t+2
	EA	mean t; Z	0,71 4,36a; 2,31b	0,68 4,45a; 3,04a	0,67 4,45a; 2,97a	0,64 4,92a; 2,99a
Total	TA	mean t; Z	0,65 4,03a; 2,37b	0,66 4,37a; 3,04a	0,66 4,40a; 2,94a	0,64 4,56a; 2,99a
Sample	FaA	mean t; Z	0,33 2,67a; 5,81a	0,23 2,59a; 6,13a	0,39 2,91a; 5,25a	0,44 3,01a; 4,61a
	FinA/FA (%)	mean t; Z	15,63 -; 4,70a	9,80 -; 5,58a	19,70 1,98b; 3,74a	23,51 2,34b; 3,13a
	NFA/GFA(%)	mean t; Z	-14,65 -; -	-24,42 -2,52b; -2,78a	-27,61 -2,98a; -3,68a	-27,93 -3,26a; -4,31a
	EA	mean t; Z	1,29 3,07a; 2,49b	1,21 3,02a; 2,81a	1,10 2,92a; 2,95a	1,01 3,32a; 2,77a
Group	TA	mean t; Z	1,14 2,93a; 2,87a	1,18 3,01a; 3,35a	1,15 2,98a; 3,57a	1,08 3,03a; 3,18a
Subsidiaries	FinA	mean t; Z	0,65 2,03b; 2,00b	0,41 2,15b; 2,17b	0,80 2,51b; -	0,80 2,52b; -
(S)	FinA/FA (%)	mean t; Z	25,52 -; -	17,01 -; 2,41b	40,07 1,89c; -	41,15 2,10c; -
	EA	mean t; Z	0,43 3,44a; -	0,43 3,71a; 1,81c	0,47 3,60b; 1,68c	0,46 3,77b; 1,81c
Family	TA	mean t; Z	0,42 2,86a; -	0,41 3,54a; -	0,43 3,56a; -	0,43 3,72a; -
Businesses	FinA	mean t; Z	0,18 1,81c; 5,66a	0,15 -; 5,93a	0,21 -; 5,77a	0,28 1,79a; 5,38a
(F)	FinA/FA (%)	mean t; Z	11,02 -; 4,93a	6,43 -; 5,14a	10,19 -; 4,29a	15,28 -; 3,78a
	NFA/GFA(%)	mean t; Z	-14,27 -; -	-25,68 -2,32b; -2,51b	-35,24 -3,49a; -4,30a	-36,01 -3,77a; -4,90a
	EA	T; Z	2,57b; 1,95c	2,48b; 1,86c	2,00b; 1,81c	2,04b; 1,75c
S – F	TA	T; Z	2,16b; 2,06b	2,46b; 2,34b	2,29b; 2,46b	2,21b; 2,19b
	FinA	T; Z	1,79c; -	-; -	2,07b; 1,70c	1,68c; -

a, b, c: tests significant at the 1%, 5% and 10% levels respectively

This result can be compared to that of Kim and Lyn (1991), who, uniquely investigating American listed companies, show that these companies are more likely to be the target of an LBO if their size (TA) is small. We therefore found a new specificity of French LBOs. In addition, as the presentation of our sample implies, it appears that for all years studied, the relative size (compared with the sector) of group subsidiaries purchased in LBOs is significantly larger than that of family-run firms.Our

[10] . For more details on this methodology, see Desbrières and Schatt (2002).

data also enable us to clarify the development mode of firms studied. Before and after the LBO, and whether we analyze the absolute (FinA) or relative (FinA/EA) figures, the companies studied have considerably more financial assets than other companies in the same sector. This result indicates a marked external growth policy of acquired firms, especially group subsidiaries (significant difference between the two groups). In addition, the variable NFA/GFA indicates that, in the companies studied, the aging of assets is greater than companies belonging to the same sector, both before (year t-1) and after (years t+1 and t+2) the LBO. This result seems to mainly characterize family-run firms, although the differences between the two sub-groups of companies are not statistically significant. Tests performed on variations of indicators (see Table 5) clarify the investment policy of firms involved in LBOs. The results obtained for the sample as a whole show that only the variable TA increases significantly immediately after the transaction, on the window (+1, -2), relative to companies in the same sector. This growth in assets appears to be mainly associated with family businesses although the differences between the two groups are not significant. It is difficult to interpret these results as the expression of a more deliberate investment policy at the firms studied, for two reasons.

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Table 5. Statistics on variations in variables (total sample and sub-groups)

			+1, -1	+1, -2	+2, -1	+2, -2
	Δ TA (%)	Mean T; Z	0,00 -; -	0,01 -; 1,91c	-0,02 -; -	-0,01 -; -
Total sample	Δ FinA (%)	Mean T; Z	0,16 -; -	0,06 -; -	0,21 -; 1,73c	0,11 -; -
	Δ FinA/FA (%)	Mean T; Z	9,90 -; -	4,07 -; -	13,71 -; 2,02b	7,88 -; -
	Δ NFA/GFA (%)	Mean T; Z	-3,19 -; -	-12,96 -1,78c; -1,89c	-3,51 -; -	-13,28 -1,83c; -2,18b
Subsidiaries (S)	Δ FinA (%)	Mean T; Z	0,38 -; 1,94c	0,14 -; -	0,39 -; 1,67c	0,15 -; -
Family	Δ TA (%)	Mean T; Z	0,02 -; -	0,02 -; 1,87c	0,02 -; -	0,02 -; 1,91c
Businesses	Δ FinA/FA (%)	Mean T; Z	3,76 -; -	-0,83 -; -	8,85 -; 1,67c	4,26 -; -
(F)	Δ NFA/GFA (%)	Mean t; Z	-9,56 -; -	-20,97 -2,37b; -2,28b	-10,33 -; -	-21,74 -2,62a; -2,61a
S – F	Δ NFA/GFA (%)	t; Z	-; -	-; -	-; -	1,72c; -

a, b, c: tests significant at the 1%, 5% and 10% levels respectively

First, the relative variation in economic assets is never significant. Given the differences in measures between EA and TA, it seems that the results obtained for the second variable are due to abnormal changes in operating assets and liabilities, which will be further confirmed (see Table 7). Second, the variable NFA/GFA decreases significantly on two of the four windows, which signifies that overall, the assets of firms studied age more rapidly after the LBO than those of firms in the same sector of activity. This result is incontrovertibly linked to family-run firms (difference between the two groups is significant for the larger window). Our results contrast with those obtained in the US by Kaplan (1989) and Opler (1992), who report a significant abnormal reduction in firms' investment during the three years and two years following the LBO respectively. This discrepancy may originate from the higher debt level of US LBOs, as the acquired firm's resources are sold as part of debt servicing. In addition, we observe for the sample and on the window (+2, -1) abnormal growth in financial investments by the companies, both in absolute value (Δ FinA) and relative to the amount of fixed assets (Δ FinA/FA). The figures reflect a growth in the concentration - described above - of

financial investments in the asset portfolio, along with the sale of industrial and commercial assets and excess liquidities[11] of acquired companies intended to finance external growth initiatives[12].

In total, the results obtained do not allow validation of our hypotheses 1 and 2. They are noteworthy because they show that we cannot explain the abnormal reduction in economic profitability of firms acquired in LBOs (see Desbrières and Schatt 2002) by a mechanical effect attributable to an abnormal increase in the amount of the assets, i.e. in investments. Nonetheless, these companies have significantly restructured their wealth (transfer of assets, use of liquidities) to finance the acquisition of the holdings. These two aspects of their investment policy lead, mainly for family-run companies, to relatively significant aging of their production tool.

4.2. Changes in operational management of firms involved in LBOs

Firms purchased in LBOs have sales and WCR significantly greater than those of companies in the same sector of activity, for all periods studied (see Table 6).

Table 6. Static statistics on total sample and on sub -groups

			t-2	t-1	t+1	t+2
	S	Mean t; Z	0.69 4.49a; 2.37b	0.73 4.64a; 3.01a	0.87 4.93a; 3.17a	0.80 4.93a; 2.85a
Total	WCR	Mean t; Z	0.55 3.51a; -	0.50 3.56a; -	0.45 4.07a; 3.28a	0.51 4.04a; 2.58a
Sample	CPP	Mean t; Z	-0.21 -1.80c; -2.24b	-0.16 -; -1.85c	-0.12 -; -1.73c	-0.10 -; -
	VA/S (%)	Mean t; Z	35.95 2.01b; 1.87c	23.90 -; -	18.44 -; -	12.41 -; -
	W	Mean T; Z	0.78 4.99a; 3.22a	0.82 4.99a; 3.62a	0.90 5.27a; 3.72a	0.85 5.33a; 3.68a
Group	S	Mean T; Z	1.20 3.06a; 2.60a	1.24 3.10a; 3.44a	1.45 3.24a; 3.22a	1.31 3.20a; 2.94a
Subsidiaries (S)	WCR	Mean T; Z	0.98 2.50b; 1.78c	0.83 2.41b; 2.02b	0.58 2.46b; 2.99a	0.73 2.65a; 2.65a
	W	Mean T; Z	1.12 3.12a; 2.69a	1.15 3.01a; 3.18a	1.24 3.05a; 2.85a	1.13 3.04a; 3.09a
	S	Mean T; Z	0.45 3.59a; -	0.50 3.74a; -	0.60 4.05a; 1.65c	0.55 4.12a; -
Family	WCR	Mean T; Z	0.35 2.55b; -	0.34 2.73a; -	0.39 3.26a; 1.92c	0.40 3.09a; -
Businesses	CPP	Mean T; Z	-0.30 -2.26b; -2.57a	-0.26 -1.84c; -2.20b	-0.21 -; -2.02b	-0.17 -; -1.71c
(F)	VA/S (%)	Mean T; Z	37.55 1.79c; 1.80c	28.70 -; -	20.74 -; -	15.51 -; -
	W	Mean T; Z	0.62 3.99a; 2.03b	0.66 4.13a; 2.19b	0.74 4.54a; 2.50b	0.72 4.60a; 2.27b
	S	T; Z	2.36b; 1.85c	2.26b; 2.21b	2.31b; 2.06b	2.26b; 1.92c
S – F	IP	T; Z	-; 1.74c	-; -	-; -	-; -
	CP	T; Z	1.78c; 2.19b	1.86c; 2.24b	1.83c; -	
	CPP	T; Z	2.63a; 2.42b	2.80a; 2.35b	2.57b; -	2.12b; 1.85c

a, b, c: tests significant at the 1%, 5% and 10% levels respectively

[11] . Desbrières and Schatt (2002) found that firms have greater liquidity than their sector average, but this liquidity decreases significantly after the LBO.

[12] . This compensation arises from the results' approaching the stability observed in economic assets. Other tests show that the variations related to net fixed assets and gross fixed assets are never significant.

These results are consistent with those previously obtained for assets (see Table 4). The result regarding the WCR is not attributable to bad control over operating asset management because the inventory period and collection period (not reported here) are not significantly different in these firms from the sector as a whole. However, the variable CPP is negative from t-2 to t+1, which signifies that overall, these companies obtain shorter creditors' payment periods than other companies in the same sector. The results obtained for the variables S, IP, CP and CPP differ between the two sub-samples. The relative sales (to the sector) of group subsidiaries appear significantly larger than that of family-run firms, which is consistent with the result for their relative size differential previously noted (variables EA and TA). The relative inventory period (solely on the period t-2) and collection period (from t-2 to t+1) along with creditors' payments period (for the entire period studied) is significantly higher in the former subsidiaries. But the compensation between the first two results and the latter result can explain the absence of significant difference of relative WCR between our two sub-samples. Considering the value added ratio VA/S, the results obtained for the entire sample illustrate the superiority of firms acquired in LBOs only for year t-2. This result seems to be more pronounced for family-run firms.

Table 7. Statistics on variation of variables (total sample and sub-groups)

			+1, -1	+1, -2	+2, -1	+2, -2
	Δ S	mean t; Z	0.14 3.05a; 2.76a	0.19 3.41a; 3.63a	0.06 -; -	0.11 2.13b; 2.11b
	Δ IP	mean t; Z	0.08 -; 2.11b	-0.02 -; -2.59a	0.08 -; 2.42b	-0.03 -; -3.03a
Total sample	Δ CPP	mean t; Z	0.04 -; -	0.09 2.03b; 2.13b	0.06 -; -	0.11 2.36b; 2.40b
	ΔVA/S (%)	mean t; Z	-5.46 -; -	-17.51 -2.09b; -	-11.49 -2.79a; -2.58a	-23.54 -2.91a; -3.07a
	Δ W	Mean t; Z	0.08 2.15b; 1.73c	0.12 2.35b; 2.53b	0.03 -; -	0.07 -; 1.72c
	Δ W/VA (%)	Mean t; Z	8.91 1.97c; 1.72c	8.20 1.73c; -	14.98 3.50a; 3.94a	14.27 3.24a; 3.02a
Group	Δ S	mean t; Z	0.21 2.17b; 1.74c	0.25 2.11b; 2.47b	0.07 -; -	0.11 -; -
Subsidiaries(S)	ΔVA/S (%)	mean t; Z	-0.07 -; -	-18.97 -1.70c; -	-7.82 -; -	-26.72 -2.23b; -1.73c
	Δ S	mean t; Z	0.11 2.14b; 2.24b	0.15 2.69a; 2.66a	0.06 -; -	0.10 1.74c; 1.62c
	Δ IP	mean t; Z	0.09 2.07b; 2.26b	0.00 -; 3.20a	0.11 2.65a; 2.62a	0.02 -; 3.70a
Family	Δ CPP	mean t; Z	0.06 -; -	0.09 1.75c; 2.42b	0.09 -; -	0.13 2.24b; 2.30b
Businesses (F)	ΔVA/S (%)	mean t; Z	-7.96 -1.75c ; -	-16.81 -; -	-13.19 -2.55b; -2.54b	-22.04 -2.10b; -2.56b
	Δ W	Mean t; Z	0.07 1.73c; 1.70c	0.12 2.45b; 2.08b	0.05 -; -	0.10 1.99b; -
	Δ W/VA (%)	Mean t; Z	14.54 2.82a; 2.69a	13.03 2.34b; 1.97b	19.01 3.43a; 3.84a	17.50 3.39a; 3.26a
	Δ IP	t; Z	-; -	-; -1.80c	-; -	-; -1.86c
S – F	Δ CP	t; Z	-; -	-; -	-; -1.66c	-; -
	Δ W/VA (%)	t; Z	-1.84c; -2.05b	-; -	-; -	-; -

a, b, c: tests significant at the 1%, 5% and 10% levels respectively

Lastly, the payroll appears higher in LBO firms than in their counterparts belonging to the same sector, for all periods and for the various samples formed. Note that this variable is not significantly different between the two sub-groups and that S/VA is never significant. Tests performed on variations of these indicators (see Table 7) show that relative to the sector, sales of French firms purchased in LBOs rise significantly after the transaction. This increase does not appear more marked in

either of the two categories of firms, despite the contrasting motivations and conditions surrounding the LBO. Our results therefore do not corroborate those obtained in the US by Kaplan (1989), who measured a significant abnormal reduction in sales of firms during the two years following the LBO. Nonetheless, Singh (1990) reported abnormal growth in sales after the LBO, especially in former subsidiaries of groups (highly underrepresented in Kaplan's sample).

Table 7 also shows, for the three largest windows, negative changes in the value added ratio (VA/S) of French firms purchased in LBOs (total sample) relative to the sector. As we have observed abnormal growth of their sales, this deterioration related to productivity of companies after the transaction undoubtedly originates from an abnormal decrease in their value added. As we suggested in the theoretical section, this result may originate from a termination of implicit contracts between the acquired firm and some of its operating partners, which oblige the company to incur greater intermediary consumption and/or reduce sales prices to maintain or increase its market share. Even if the accounting data available do not enable us to differentiate these two scenarios, the results obtained validate hypothesis H3. The abnormal reduction in the overperformance of LBO firms indeed appears to be partly founded on losses in productivity originating from poor control of operational management. In contrast, no significant different between the two sub-groups was measured. Hypothesis H4 is therefore not confirmed.

Table 7 does not illustrate an abnormal increase in the WCR of firms after the LBO. However, for both the total sample and the sub-group of family businesses, the creditors' payments period increases significantly in acquired companies compared with those in the same sector, for the windows (+1, -2) and (+2, -2). The results obtained for the inventory period appear contradictory because if they abnormally increase over the windows (+1, -1) and (+2, -1), the opposite pattern was seen for the windows (+1, -2) and (+2, -2). Given these partial and sometimes contradictory results, we cannot consider Hypothesis H5 to be borne out. Comparison of the WCR management of the two subgroups of firms reveals that the abnormal reduction in the inventory period observed for the total sample on windows (+1, -2) and (+2, -2) is directly linked to former subsidiaries of groups.

This result, originating from a decrease in inventory over the period (-1, -2), reflects a change in the policy of groups regarding entities that are about to be divested, and whose inventories were abnormally high in t-2 (see Table 6). We therefore cannot consider that this result confirms hypothesis H7. However, an abnormal reduction in creditors' payments period was seen on the window (+2, -1) for subsidiaries, signifying a radicalization of their trade policy once they are liberated from the control of their parent corporation. Nonetheless, as the resources freed do not have a particular influence on the changes in their WCR (relative to the sector), we cannot consider that this factor explains the findings of Desbrières and Schatt (2002), who report that French former subsidiaries of groups are more efficient than family-run companies after the LBO. Hypothesis H7 is therefore not validated. Moreover, it appears that individual salaries and/or the number of employees increase more dramatically in companies involved in LBOs than in comparable companies in the sector, whether we analyze absolute amounts or amounts relative to the value added produced. Hypothesis H6 is therefore validated. This result is linked to family-run firms, in which the relative growth (to the sector) of the variable W/VA is significantly greater than that measured in former subsidiaries. Thus, Hypothesis H8 is also validated. Moreover, the wages variable helps explain the lesser deterioration of overperformance of these companies, compared with family-run firms, after the buyout.

In total, we have shown that management of operating assets and liabilities, i.e. the WCR of firms studied, does not cause the deterioration of overperformance after the LBO. In contrast, abnormal growth of intermediary consumption and/or reduction in commercial sales prices, along with the increase in wages and/or the number of employees, are essential explanatory factors of the deterioration of overperformance after the LBO. In addition, the superiority of former subsidiaries of groups over family-run companies is explained mainly by the increase in payroll in these companies and not by the other variables studied. Note that we have performed multivariate analyses using regressions to attempt to clarify the relative weight of our explanatory variables of the abnormal reduction in performance in French LBOs. However, owing to significant multicollinearity between these variables, these tests have proven inoperative: the only statistically significant variable is a dichotomous variable specifying the nature of the firm acquired (subsidiary/family firm).

Lastly, the nature and specificity of human capital and social capital resources contributed by the LBO initiators relative to that of historical managers, does not appear to explain our results.

However, we can interpret them partly in the framework of the problematic of creation and distribution of wealth among the various stakeholders of the firms studied (Charreaux, Desbrières 2001). Concerning the various operating partners, our study has clarified a greater appropriation of rents from customers and/or suppliers, depending on whether the reductions in prices are granted to the former or increases to the latter after the LBO. In fact, we could not differentiate the two scenarios owing to a lack of internal information. In parallel, suppliers were found to increase the payments period granted to LBO firms, mainly in return for larger volumes of activity (abnormal increase in inventory period) in particularly significant proportions for family businesses. Former subsidiaries of groups significantly reduced the collection period granted to their customers once they are freed from the control of the parent corporation. Other beneficiaries of LBOs over the medium term are the personnel of family-run firms, which increase in number and/or see their wages grow more sharply than in other firms in the same sector. These distributions of rents is financed by shareholders that see the economic and financial profitability of their firm decrease abnormally (relative to the sector), more sharply than in subsidiaries of groups acquired in LBOs (Desbrières and Schatt 2002).

Conclusion

This article explores the sources of deterioration of overperformance of French firms acquired in LBOs, notably their investment policy and operational management, along with the distribution of wealth among the main stakeholders (shareholders, employees, customers, suppliers). The findings show that these companies have a size (in terms of assets and sales) that is larger than their counterparts in the same sector of activity, both before and after the transaction, along with a more planned external growth policy. They also disburse a larger payroll and experience greater aging of their assets. Former subsidiaries of groups exhibit a few specific characteristics in relation to family-run firms targeted by LBOs. Group subsidiaries have a larger size, a more marked external growth policy and longer collection and creditors' payments periods than the latter group, both before and after the buyout. The change in the characteristic indicators of acquired companies' industrial policy shows that we cannot explain the abnormal reduction in economic profitability of such firms (Desbrières, Schatt 2002) by a mechanical effect attributable to growth in the amount of their assets, and thus their investments. Nonetheless, if the asset volume does not vary abnormally, these companies significantly restructure their wealth by assigning a portion of their industrial assets (or use excess liquidity) to finance the acquisition of financial interests. In family-run companies, these two aspects of the investment policy lead to a relatively significant aging of the production tool.

A larger contrast is observed if we consider the indicators that characterize operational management. For one, management of operating assets and liabilities, i.e. WCR, of the French firms studied, is not a cause of the deterioration of their overperformance after the LBO. In effect, abnormal growth of inventory of acquired forms may be financed by an extension of creditors' payments period. Former subsidiaries abnormally reduce the collection period granted to their customers, without the resources thus freed significantly influencing a change in their WCR. In contrast, abnormal growth of intermediary consumption and/or reduction in commercial sales prices, along with the creation of jobs and/or increases in wages, are essential explanatory factors that play an instrumental role in the deterioration of overperformance after the buyout.

Lastly, the superiority of former subsidiaries over family-run companies highlighted by the same authors is fundamentally explained by the increase in payroll of these companies, not by the other variables studied. It would be interesting to supplement the study of determinants of deterioration of medium-term performance of French firms involved in LBOs. A more qualitative approach based on questionnaires and interviews could be applied, notably to follow changes in strategies and industrial and commercial policies, incentive systems and control systems (compensation policy, employee share ownership, reorganization of responsibility centers, etc.) of the LBO target.

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