

Leveraged buyouts: risky financial arrangements or growth opportunities for companies?

The leveraged buyout (LBO) market has grown significantly in recent years, driven by the historically low cost of capital. However, the recent rise in interest rates could undermine the quality of existing LBOs. These complex financial arrangements are based on maximising leverage by financing business acquisitions with high levels of debt. LBOs have controversial effects on the performance and financial health of businesses. An analysis of the bank debt of companies subject to LBOs compared to their peers points to an increase in bank debt and credit risk for companies under LBOs. This deterioration in the financial health of these businesses requires vigilance on the part of lenders and regulators in the current context of higher interest rates.

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JEL codes:
G34, G32

USD **3,300** billion
The amount of assets under management
by LBOs worldwide in 2023

+44%

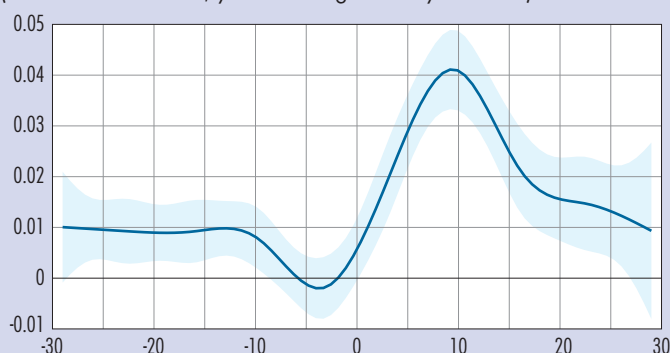
On average, the probability of default among European companies subject to LBOs is 44% higher than that of their peers one year after the LBO

+35%

On average, the growth rate of debt among European companies subject to LBOs is 35% higher than that of their peers one year after the LBO

Smoothed growth rate of bank debt for non-financial companies around an LBO transaction

(x-axis: time in months; y-axis: average monthly rate in %)



Guide: The horizontal axis indicates the number of months before (negative values) and after (positive values) the transaction. The light blue area represents a 95% confidence interval: it reflects the margin of statistical uncertainty around the estimated average.

Note: An LBO (or leveraged buy-out) entails the acquisition of a business through the use of high levels of debt.

Sources: Eurosystem (AnaCredit database); author's calculations.

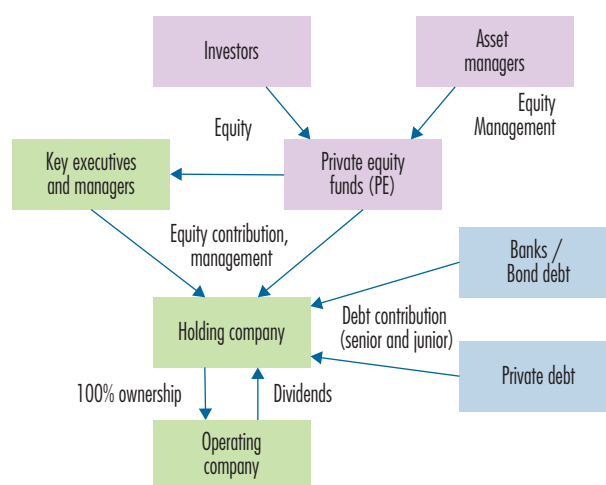
1 LBOs: complex financing arrangements using debt

LBOs are based on complex financial arrangements

Leveraged buyouts (LBOs) are debt-financed transactions involving the acquisition of businesses. LBOs consist of complex financial arrangements that maximise control for the acquirer while minimising investment. The buyer, often (but not exclusively) a private equity fund, creates a vehicle, or holding company, in which it owns the majority of the capital. This holding company then acquires the target company using bank loans (usually referred to as senior debt), private debt funds, and bond debt (usually referred to as junior debt). The debt contracted by the holding company is relatively risky. LBOs are characterised by intensive use of debt, with loans generally representing between 60% and 90% of the financing of the acquisition (Kaplan and Strömberg, 2009). The financial costs of the debt are repaid by the dividends paid out by the target company (see Diagram 1). LBOs become profitable once dividends exceed the cost of borrowed capital. Leverage is therefore key to ensuring the profitability of the deal from the investor perspective, as they have only committed the equity necessary to create the holding company. The greater the proportion of debt used to finance the buyout, the more the investor benefits from leverage, within the limits of the target's ability to generate sufficient dividends to service the debt. LBOs also allow investors to benefit from tax leverage: the holding company can deduct the interest on the loan from its corporation tax. At the end of the investment cycle, companies under management are sold either through an initial public offering (14% of exits on average in Europe between 2013 and 2023), a buyout by another company (42%), or a buyout by another private equity (PE) fund (43% – PitchBook, 2023).

LBOs first appeared in the 1970s, when conflicts between shareholders and corporate executives were a hot topic in the United States. Shareholders were concerned about the dilution of their power as a result of the increase in their

D1 Actors and interactions in an LBO



Source: Author.

Note: LBO, leveraged buy-out; PE, private equity.

number, the increased use of executives who sat on boards of directors on their behalf, and conflicts of interest among company executives. Against the backdrop of these moral hazards¹, LBOs helped realign shareholder and management interests: high repayments require the company to generate additional profitability. Moreover, when managers are also investors in the LBO (transactions known as management buyouts), they are incentivised to reduce debt levels in order to increase the value of their equity. LBOs therefore boost the company's incentive to maximise its value, which also aligns its interests with those of lenders, banks and bondholders (Barron Baskin and Miranti, 1997). When it was first created, the LBO was a financial (rather than managerial) innovation that enhanced a company's efficiency from the shareholder perspective.

LBOs currently account for the bulk of private equity financing in Europe

Since the early 2010s, renewed interest in LBOs has driven growth in assets managed by private equity funds (see Chart 1). The lower cost of capital linked to unconventional

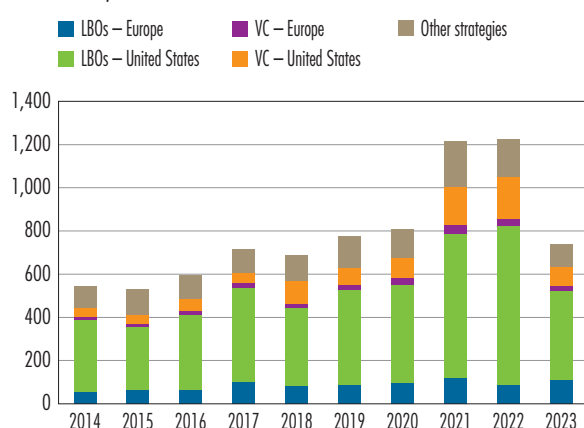
¹ Moral hazard refers to a situation where asymmetry or protection of information allows an economic agent to behave in a more risky (or less virtuous) manner than if they had to bear the consequences of their behaviour, to the detriment of another party.

monetary policies and the higher expected returns on private equity have led to an influx of capital into this class of assets. Indeed, for funds set up between 2010 and 2020, the average return on private equity is 6.97 percentage points higher than the Morningstar Global Index, which covers the global market for listed equities. LBOs account for 73% of assets managed by PE funds in Europe², compared with 50% for US PE funds and 46% worldwide in 2022 (Banque de France, 2023), representing USD 850 billion in assets under management (USD 2,016 billion in the United States and USD 3,300 billion worldwide). However, this estimate does not include LBOs in which the buyer is a non-financial corporation (rather than a private equity fund). The actual proportion of LBOs within corporate financing is therefore higher, but difficult to quantify precisely.

The rise in interest rates that began in 2022 put an end to a financing environment that had been highly conducive to private equity. Asset write-downs and reduced market liquidity caused asset managers to defer private equity fund liquidations and investors to cut their investments. Because LBOs depend on leverage, rising interest rates put a brake on their development.

C1 Share of LBOs in private equity funds

(USD billions)



Source: Pitchbook.

Scope: United States and Europe.

Note: LBO, leveraged buy-out; VC, venture capital.

2 Are LBOs a source of value or risk for the real economy?

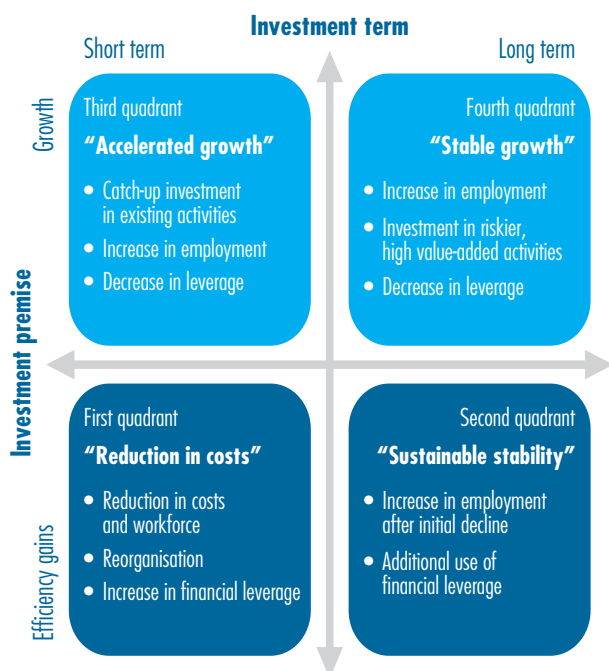
The effects of LBOs on companies' operational management

As the success of an LBO depends on the target company's ability to generate dividends, the managing fund tends to change the way the company is managed in order to increase its value. Value created by the fund is generally attributable to two factors: operational improvements or changes in capital structure and the use of leverage within the company (as distinct from leverage in the holding company). But an investment fund may choose either of these strategies and not all funds behave in the same way. However, the choice of growth strategy can be a differentiating factor and a source of outperformance for a fund (see Diagram 2) [Acharya et al., 2013].

The diversity of strategies deployed by funds and the lack of comprehensive market analyses have sparked lively debate in the academic literature on the effects of LBOs on target companies. Private equity is said to restore managerial agility, facilitating the strategic repositioning of companies, particularly those that were previously listed (Acharya et al., 2013; Boucly et al., 2011; Bergström et al., 2007). Conversely, other analyses argue that funds generate value from their investment by limiting investment (especially on research and development) and cutting costs, including wages. LBOs tend to have no effect on operational performance and to increase corporate debt (Cohn et al., 2014; Guo et al., 2011; Leslie and Oyer, 2008; Ayash and Schütt, 2016). The issue in these differing visions is that of rent extraction rather than value creation, and whether the additional return generated by the LBO is the result of a sustainable strategy or one that weakens the company by increasing its indebtedness (Gilligan and Wright, 2020).

² Europe here refers to the geographical area, including the United Kingdom, and not to the European Union.

D2 Types of buybacks, strategies and timeframes



Source: Gilligan et Wright, 2020.

A risk for businesses or for investors?

If LBO strategies are based around increasing the target company's debt, and this debt is not justified by investments that would enhance its value, then its credit risk may increase over time. LBOs involving private equity funds represent a limited proportion of corporate financing and the financial system as a whole, accounting for 0.48% of total assets in the European financial system (Banque de France, 2023). LBOs are also used in other contexts, such as mergers and acquisitions. Due to a lack of available data, these are not taken into account in this analysis, but they do contribute to the impact of LBOs on the financial system.

The LBO market is concentrated in three different ways. Firstly, because private equity funds are focused on only a few sectors. The information and communication technology sector accounted for 33% of all transactions

by value in 2022, compared with 17.9% for consumer goods and services and 17.5% for business goods and services (Invest Europe, 2023). Secondly, because assets under management are concentrated in just a few private equity funds: in 2022, 15% of assets under management worldwide were held by three management companies. Finally, because investors in these funds have relatively undiversified profiles: 27% are pension funds and 19% are funds of funds. In other words, LBOs may concentrate credit risk, given the relative lack of diversity of the players involved, be they target companies or investors.

In the event of major bankruptcies due to adverse macro-financial conditions in one or more sectors of activity, the unwinding of leveraged positions³ may not only lead to losses for investors and lenders, but also weaken the main asset managers. The different levels of exposure of systemic financial intermediaries, either as lenders and investors in private equity and private debt funds, or as corporate lenders, could crystallise simultaneously and become mutually reinforcing. The effect would be potentially procyclical for those financial intermediaries most exposed to LBOs and a macrofinancial downturn.

3 LBOs lead to an increase in the indebtedness of the target companies

Assessing the impact of LBOs on businesses despite incomplete data

Assessing the impact of LBOs on target companies first requires identifying the companies involved in LBOs, which can only be done using commercial data, however said data is not exhaustive. In this article, the companies involved in LBOs are European and the operations date from September 2018 on.⁴ There are no criteria in terms of size or sector. They were identified using the Eikon and Orbis commercial databases, which enabled a sample of 383 companies to be compiled. The lack of data on the valuation of LBO transactions (both in the sample and in the LBO market as a whole) makes it impossible to estimate its representativeness.

³ The unwinding of leveraged positions refers to a situation in which investors or companies that had borrowed to invest are forced to sell their assets quickly or repay their debts under unfavourable conditions.

⁴ Date chosen for reasons of AnaCredit data availability.

Data from the European credit register AnaCredit⁵ tracks bank loans granted to these companies on a monthly basis: contract-by-contract reporting makes it possible not only to assess companies' bank debt, but also to estimate the effect of a change in the shareholding structure on their capital structure, revenue and probability of default as estimated by banks (see Box).

LBOs increase companies' bank debt and credit risk

Being the target of an LBO causes a significant increase in a company's bank debt – by an average of 2.54 percentage points (pp) month on month – see Table A3 in the appendix. One year after the LBO, the bank debt ratio of the businesses involved was 35% higher than that of their peers. Being the

BOX

Analysis of the effect of LBOs on a company's capital structure, revenue and probability of default as estimated by banks

The analysis of the effect of LBOs on these variables is based on the difference-in-difference method. The main explanatory variable is a dummy variable with a value of 1 from the moment the company in question becomes the target of an LBO. Each month, and for each company, the model is fed fixed effects to factor in unobservable variables associated with these dimensions and to "de-mean" the dependent variable. The company's financial characteristics (increase in revenue and bank debt over the past period) and its financing conditions (increase in interest rates over the past period) serve as control variables. The formal estimated relationship is written as:

$$Y_{it} = \alpha_t + \delta_i + \beta_1 LBO_{it} + \gamma X_{it} + \epsilon_{it}$$

(i , target company; t , month of observation of variables)

The difference-in-difference method also requires a control group consisting of companies that have not been the target of an LBO, but whose probability of being so is identical to that of the companies in the sample (given their characteristics in terms of size, sector of activity and geographical location). The control group comprises 337 companies selected based on their propensity score to be the target of an LBO (see chart in the Appendix).

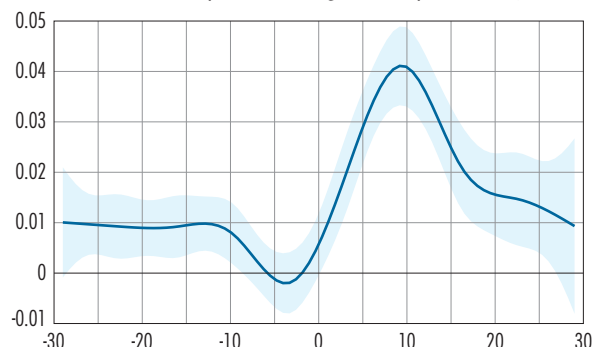
The sample consists of 720 companies analysed between September 2018 and July 2023, of which 383 were involved in an LBO during the period. The selection of companies does not depend on their survival during the period, which reduces the risk of bias in the sample. The sample comprises mainly French companies (31% of which were the target of an LBO), Italian (34%) and German companies (17%) – see Table A1.a in the appendix. The information and communication (11.5%), manufacturing (37.1%), trade and consumer discretionary¹ (16.4%) and specialised activities (11.6%) sectors also constitute the bulk of the sample (see Table A1.b). Lastly, the businesses in the sample are mainly medium-sized (47%) or large companies (28%) – see Table A1.c. Matching based on score in terms of propensity to be the target of an LBO makes it possible to obtain a control group with homogeneous country, sector and size characteristics. However, the companies in the treatment and control groups differ in their financial characteristics at the beginning of the period. The companies that will be the target of an LBO during the period have a higher average level of debt than those in the control group. Their revenue and balance sheet size are also higher (see Table A2). However, the average probability of default as estimated by banks in AnaCredit is lower for companies that will be the target of an LBO than for the control group. Companies that will enter into an LBO are therefore more indebted, but have a lower average credit risk.

¹ See goods and services classified as non-essential.

⁵ This register records credit instruments granted in Europe by banks or credit institutions with assets under management exceeding €30 billion on a monthly basis and at contract level. However, the historical depth of the data is limited, only dating back to September 2018.

C2 Smoothed average monthly growth rate of bank debt for non-financial companies around an LBO transaction

(x-axis: time in months; y-axis: average monthly rate in %)



Sources: Eurosystem (AnaCredit database); author's calculations.
Guide: The horizontal axis indicates the time before (negative values) and after (positive values) the transaction. The blue curve represents the average monthly growth rate of bank debt for the sample studied. It is calculated using locally estimated scatterplot smoothing (Loess method). The light blue area following the curve represents a 95% confidence interval around the estimated average. It reflects the margin of statistical uncertainty associated with the local estimate.

Note: An LBO (or leveraged buy-out) entails the acquisition of a business through the use of high levels of debt.

target of an LBO therefore appears to be the main factor determining debt levels. In comparison, a 1 percentage point increase in interest rates over the preceding period has no significant effect on the rate of growth of the company's debt (see Table A3). LBOs increase a business's use of bank leverage, and its effect over time is visible in the growth rate of bank debt (see Chart 2). Therefore, the average rate of growth in the indebtedness of companies, which was moderate before the LBO, increases after the investment.

The effect on business activity is difficult to estimate

The study data does not make it possible to highlight any significant effect of LBOs on trends in company revenue, which may be attributable to three hypotheses:

- the company does not change its operations (for the purpose of improving its net income) and uses leverage solely to boost its profitability (Cohn et al., 2014);
- the company makes operational changes to improve its net income, but does so by cutting costs rather than

via a business growth strategy (Muscarella and Vetsuypens, 1990);

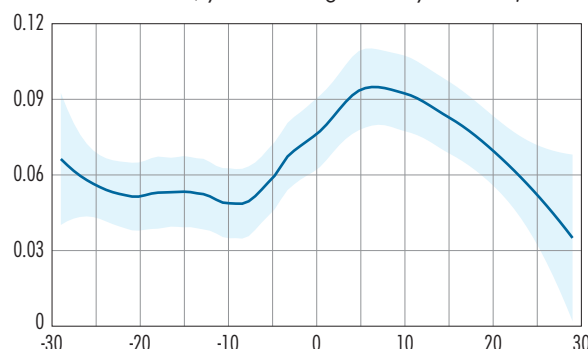
- the company pursues a growth strategy based on long-term investments, but their effects are not visible in the medium term, either in terms of increased productivity (Lichtenberg and Siegel, 1990; Amess, 2003; Harris et al., 2005) or new product development (Wright et al., 1992; Bruining and Wright, 2002; Zahra, 1996).

Banks consider that LBOs increase credit risk

Being the target of an LBO causes a significant increase in companies' probability of default as reported by banks. Target companies witness a 3.07 percentage points increase in their probability of default month on month, following their takeover, and one year after the LBO, it is 44% higher than that of their peers. LBOs therefore have a visible impact on the probability of default, which increases significantly as soon as they are deployed (see Chart 3). LBOs undermine the financial health of companies, although it is difficult to assess their impact on the sustainability of operational strategies. According to Ayash and Rastad (2021), the increase in the probability of default as a result of LBOs is consistent with the increase in the probability of bankruptcy, estimated at 18%.

C3 Smoothed growth in the probability of default as estimated by banks around an LBO transaction

(x-axis: time in months; y-axis: average monthly rate in %)



Sources: Eurosystem (AnaCredit database); author's calculations.
Guide: The horizontal axis indicates the time before (negative values) and after (positive values) the transaction. The blue curve represents the average monthly growth in the probability of default for the sample studied. Scatterplot smoothing (Loess method) with a confidence interval of 95% (see Chart 2).

Note: An LBO (or leveraged buy-out) entails the acquisition of a business through the use of high levels of debt.

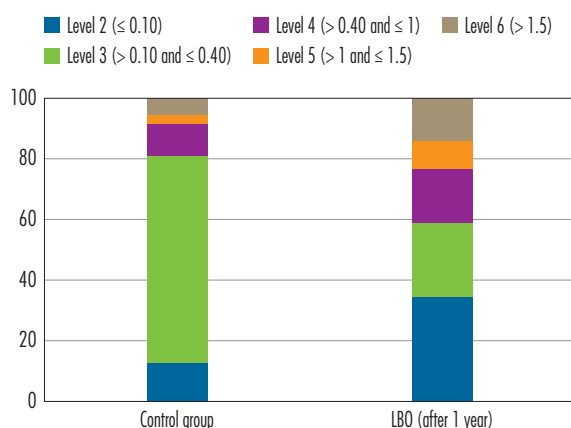
In the study sample, the median probability of default⁶ for companies subject to an LBO is therefore higher than that of their peers, whereas it was close to the median probability of default for companies in the control group prior to the LBO. LBOs can therefore have an immediate effect on the quality of lending banks' portfolios due to the loans used to acquire target companies. In fact, one year after the investment, 41% of the debt of companies subject to an LBO has a probability of default equivalent to a BB+/Ba1 rating, compared with 19% for companies in the control group (see Chart 4). Companies subject to LBOs therefore present a significantly higher – as well as a more dispersed – credit risk.

It is difficult to estimate the total levels of debt associated with LBOs, as the bulk of the debt is held by the acquiring holding company. As LBOs generate a high volume of debt for the holding company, it is important that the target company is in good financial health. The risk of bankruptcy of the latter jeopardises the entire arrangement, which is inherently a very risky strategy. To assess the associated financial risk, it is therefore necessary to estimate the debt associated with LBOs in all its forms (i.e. bank debt, private debt and bond debt) and at all levels of the arrangement (company and holding company) in an exhaustive manner.

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C4 Levels of probabilities of default as estimated by banks for companies under LBOs and their peers

(%)



Sources: Eurosystem (AnaCredit database); author's calculations.
Note: The Eurosystem credit assessment framework (ECAf) considers that a one-year probability of default of less than or equal to 0.10% is equivalent to a level 2 (high quality) credit quality assessment on the Eurosystem's harmonised rating scale, subject to regular review. Subsequently, successive intervals of 0.40%, 1% and 1.50% correspond to levels 3, 4 and 5. The latter two are equivalent to a high yield rating (BB+/Ba1 or lower): low credit quality and therefore high yield in return for the risk. The control group refers to the set of companies with similar characteristics that are not the target of LBOs. It provides a comparative benchmark for the sample of companies subject to LBOs studied.

The study highlights an increase in bank debt for companies involved in LBOs when compared with their peers. Without invalidating the hypothesis whereby LBOs have a favourable impact on their operational performance, the increased probability of default associated with LBOs points to a deterioration in the financial health of these companies. While the proportion of private equity in corporate financing in France remains limited, the growth of LBOs could amplify both business's level of debt and their credit risk.

⁶ The median is the value that separates a distribution into two halves.

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Appendix

Descriptive statistics and regression tables

TA1 Demographic characteristics of companies in the study sample
(%)

a) Distribution of companies by country

	Treatment group (LBO)	Control group
Belgium	1.3	2.1
Switzerland	0.3	0.3
Germany	17.3	15.7
Denmark	0.0	0.9
Spain	6.0	5.6
Finland	2.4	3.0
France	31.0	31.2
United Kingdom	0.8	0.0
Greece	0.3	0.0
Ireland	0.3	0.3
Italy	33.9	35.0
Netherlands	6.0	4.5
Norway	0.3	1.2
Sweden	0.3	0.3

b) Distribution of companies by sector

	Treatment group (LBO)	Control group
Financial and insurance activities	6.0	2.7
Real estate activities	1.6	2.1
Specialist, scientific and technical activities	11.7	12.5
Public administration, education, healthcare	0.3	0.3
Agriculture	0.3	0.3
Other service activities	0.5	0.6
Trade, transport services, accommodation and food services	16.4	14.5
Manufacturing, extractive and other industries	37.1	37.1
Information and communication	11.5	13.6
Other	14.6	16.3

c) Distribution of companies by size

	Treatment group (LBO)	Control group
Micro-enterprises	6	7
Small enterprises	18	25
Medium-sized enterprises (SMEs)	47	40
Large enterprises	28	28

Sources: Eurosystem (AnaCredit database), Reuters (Eikon database); author's calculations.

Notes: Classification by size based on European Commission recommendations.

Micro-enterprises: < 10 employees, ≤ EUR 2 million in annual revenue; small enterprise: < 50 employees, ≤ EUR 10 million in annual revenue; medium-sized enterprise: < 250 employees, ≤ EUR 50 million in annual revenue; large enterprise: values above these thresholds. The control group covers companies with similar characteristics that are not the target of LBOs. It provides a comparative benchmark for the sample of companies studied that are subject to LBOs.

TA2 Financial characteristics of companies in the study sample, in September 2018

(bank debt, revenue, balance sheet total in thousands of euros; probability of default (in %))

	Bank debt		Revenue		Balance sheet size		Probability of default	
	LBO	Control	LBO	Control	LBO	Control	LBO	Control
Minimum	0.1	0.9	0	0	0	0	0	
First quartile	673.4	67.9	7,279,358	977,500	6,352.1	901.9	0	0
Median	2,801.7	246.8	19,655,905	3,592,500	19,058	3,237	0.28	0.41
Average	22,862.3	3,603.8	105,760,465	30,540,278	267,983.4	58,591.2	2.22	5.84
Third quartile	10,966.2	1,263.6	43,384,500	14,387,906	58,356	11,242	0.75	1.90
Maximum	1,136,000	531,786.5	366,337.9	2,140,000	21,669,429	7,900,368	100	100
N/A	–	–	105	106	119	112	–	–

Sources: Eurosystem (AnaCredit database), Reuters (Eikon database); author's calculations.

Notes: "LBO" for the LBO treatment group, "Control" for the control group. N/A: value not available.

Quartiles are the values that separate a distribution into four equal parts. The median separates it into two equal halves.

TA3 Regression tables for study sample

(regression coefficients)

	Growth in revenue	Growth in bank debt	Growth in probability of default	Growth in revenue	Growth in bank debt	Growth in probability of default
LBO	0.044 (0.0247)	1.472*** (0.258)	1.908** (0.637)	-0.041 (0.032)	2,542*** (0.507)	3.072** (1.017)
Growth in bank debt (t-1)	0.001 (0.0005)	–	0.0561 (0.0329)	0.001 (0.001)	–	0.054 (0.037)
Growth in revenue (t-1)	–	0.115 (0.059)	–	–	0.0831 (0.057)	–
Growth in interest rate (t-1)	–	0.049 (0.035)	–	–	0.044 (0.040)	–
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm-fixed effects	No	No	No	Yes	Yes	Yes
Clustered standard errors	By date	By date	By date	By date and entreprise	By date and entreprise	By date and entreprise
Observations	32,925	32,032	28,306	32,925	32,032	28,306
R ²	0.082	0.008	0.011	0.111	0.042	0.034

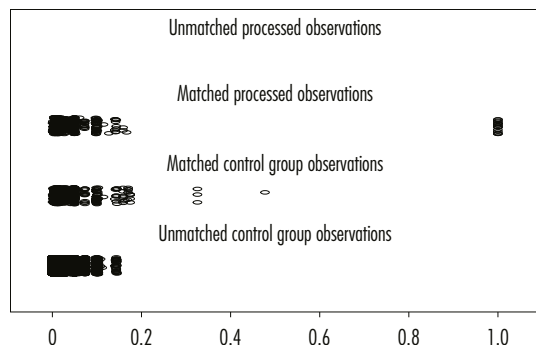
Source: Author's estimates.

Guide: This table shows the estimated effect of several factors (including being the target of an LBO) on the growth of revenue, debt and the probability of default of companies. The coefficients indicate the direction and intensity of each effect.

Notes: Correspondence of statistical significance (significance thresholds):

*** p-value close to 0, ** p-value < 0.1%, * p-value < 1%, (no asterisk) p-value < 5%.

CA Distribution of scores indicating companies' propensity to be the target of an LBO



Source: Author's estimates.

Scope: Companies in the LBO treatment group and companies in the control group.

Guide: The propensity score corresponds to the conditional probability of being the target of an LBO, weighted by the presence of covariables (financial and demographic characteristics of companies). This propensity score therefore falls within a range of 0 to 1.

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