

# The Impact of Ownership Structure and Corporate Governance Characteristics on LBO gains

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## Abstract

This paper explores the relationship between ownership structure and firm value by examining the market effects of LBO transactions. LBO transactions are assumed to solve inefficiencies due to Agency conflicts in the firm, either between the shareholders and the manager or between the major owner and minority shareholders. Principal – Agent Agency (PAA) conflicts are expected to dominate in the US, where ownership structures tend to be dispersed, while Principal-Principal Agency (PPA) conflicts are more likely to dominate in Continental Europe, where concentrated ownerships is the most common form of structure. With a sample of 63 transactions with French, German and US targets from 1998 to 2004, I find that US targets have higher abnormal returns at the time of announcement than European targets, but have negative post-event abnormal returns. I also find that PAA problems, proxied by the Tobin Q and cash flow retention, are indeed a source of gain for the LBO investor. Also the management ownership appears to have a significant impact on the gains: I find that the situation that creates Agency conflicts is when two controlling parties, outsider and manager, are facing each other with equivalent forces.

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## **Section 1: Introduction**

For several decades now, the ownership structure of a firm has been shown to have an impact on the firm's value. This impact is caused by both the fraction of the shares owned and the identity of the owners. The difference of percentage of ownership control can give rise to conflicts between shareholders, while the conflict of interest between outsiders and insiders creates conflicts between shareholders and managers. Berle and Means (1932) showed that dispersed ownership will create a cost on the firm's value, while Dharwadkar, George and Brandes (2000) showed that a main owner had the possibility to expropriate minorities at the expense of the firm's value. Ferreira, Ornelas and Turner (2005) also show that ownership is value-relevant.

Based on this hypothesis, I propose an M&A framework to study the features of ownership structure. Indeed, consider the following three different types of structure: a firm with a single shareholder who also manages the firm, a firm with low management ownership and widely held by shareholders, and a firm with a major owner and minority shareholders.

The first case is likely to be the most value-maximizer, since it presents perfectly aligned interests between the manager and shareholders. Aharony, Falk and Lin (1996) find that the relationship between the management stake and the firm's value is convex, implying that after a certain point, the more ownership the manager has, the better the firm value is.

The second case was first described by Berle and Means (1932), who showed that the typical separation of ownership and control had a negative impact on the firm's value. This cost has since been defined by Jensen and Meckling (1976) as Principal-Agent Agency (PAA) cost. Because control of equity and operational decisions are in different hands, the value of the

firm may be reduced. Indeed, both parties will be motivated by different personal interests that will dictate their decisions. As the manager's decisions drive the strategy of the firm, the firm's value will be driven by her motivations and may move away from shareholders' value maximization. For example, the manager may favor projects with lower risk and negative net present value, in opposition to shareholders' preferences.

The third case is likely to present what is now called Principal-Principal Agency (PPA) conflicts, according to Dharwadkar, George and Brandes (2000). In this case, there is less opportunity for conflicts with managers, since main owners are strong enough to have their interests respected and, due to their high ownership, have an incentive to monitor the management. However, a concentrated ownership has its own inefficiencies, and the main one is minority expropriation. Facing controlling shareholders who will tend to satisfy their own personal interests before the global shareholders interests, minority shareholders may find themselves abused and defenseless. In that case too, the firm's value is lower than pure shareholders' value maximization. When outside shareholders have to change an undisciplined manager, they can better align his interests with theirs by changing his compensation, monitor him with internal control, or use external markets to fire him. There are ways to limit the loss due to PAA conflicts. In contrast, small shareholders with weak legal protection cannot discipline majority owners, and are stuck with their shares since few others are likely to buy their position. Since they face no real limitation, large shareholders are freer to satisfy their personal interests at the expense of the global maximization. The loss incurred in PPA conflicts is therefore expected to be higher than in the PAA conflict.

In this paper, I look at the impact of the last two cases, PAA and PPA conflicts, and use the features of a LBO transaction to evaluate their impact on firm value. Indeed, it is rather commonly accepted that in the US, a LBO transaction solves for PAA conflicts: by changing

the relationship between the shareholder and the manager, a LBO investor is able to capture the incurred loss. By replacing the main owner by a financier who is expected to be more oriented towards global shareholder maximization (Thomsen and Pedersen (2000)), an LBO is also expected to solve for PPA conflicts. Therefore, by looking at the effect of the LBO announcement on a firm's stock price, I will have a measure of Agency costs and establish relationships between its costs and the ownership features.

The US and Europe are good laboratories for this kind of research because they present two extreme types of ownership structures and markets. Indeed, while the UK tends to rather quickly adopt the US trends, Continental Europe, because it differs in many ways from Anglo-Saxon countries, generally reacts later or differently to US market evolution. A major reason for the differences lies in the legal origin of the country and the historical context in which the law has been shaped. The impacts of Common-Law and Civil-Law systems on financial markets have been widely studied, particularly by La Porta et al. (1997, 1998, 1999, 2002): because they bring less protection to investors, Civil-Law countries have less developed financial markets and more concentrated ownership structures, leading to different sources of inefficiencies and consequently to the use of different tools in the US and in Continental Europe. This paper therefore contributes to the research on ownership structure and changes by introducing an international dimension, which allows comparing a larger number of ownership structure patterns. As Continental Europe is expected to have more concentrated ownership structures than in the US, countries from this area constitute a pool of data likely to illustrate PPA conflicts rather than PAA conflicts.

Using a sample of 63 LBO transactions that took place in France, Germany and the US between 1998 and 2004, I calculated their abnormal returns at the time of the LBO announcement and regressed the target's ownership characteristics on this gain/loss.

With the event study, I find that in Continental Europe, the run-up period shows higher abnormal returns than the event period, whereas most of the gain of the transaction happens in the event period in the US, implying that European investors tend to benefit from their private information before the public announcement. I also find that the gains in Continental Europe are lower than in the US, which contradicts the assumption that they should be higher because minority expropriation is more costly to the firm than shareholder-managers conflicts. I also find a quite surprising result: the post event abnormal returns in the US are significantly negative, which has to my knowledge not been found in previous studies. This result seems to be an interesting subject for further research.

The results of the regression support the shareholder-manager Agency hypothesis, since I find that characteristics of this conflict, Tobin's Q and cash-flow retention, are positively related to the gains of the LBO. I also find that the gains seem to increase with the management's stake, even when it is a controlling stake, but only in a situation where he does not face another controlling shareholder. Indeed, in the cases where ownership is concentrated (i.e. there is at least one main owner distinct from the manager), the manager having a controlling stake has a negative impact on LBO gains. This implies that agency conflicts tend to be reduced either by the fact that the two controlling parties are cooperating and do not have conflict interests, or by the fact that they are competing with equivalent forces. In both cases, the value of the firm is will be closer to shareholder's maximization, letting little gain for the new investor to catch. My results further support the owner identity impact on value maximization, since the relation between a financier as one of the first owners and the second financier's gain is almost zero, showing again that little profit can be made by such a change of ownership. Curiously, secondary LBOs, in which the first financier controlled more than 80% of the company, have a positive impact on the

second financier's gain. With the high frequency of this type of transaction and the debate it creates, this is an interesting result worth exploring in further research. Finally, I find that an increase in the target's ROA in the five years before the transaction has a negative impact on the LBO gains, implying that less improvement can be brought by the change of ownership.

This paper is organized as follows: Section 2 presents a review of previous research on LBOs, international differences and Agency conflicts. Section 3 describes the data and variable sources and choice, Section 4 present descriptive information on my sample compared to the global universe, Section 5 explains the event study model and results, Section 6 shows the regression results and Section 7 concludes. The tables, references and appendixes are placed in the end of the paper.

## **Section 2: Literature review**

### **Part I: LBOs**

#### **Definition of a LBO in this paper**

A clear definition of what is considered as a LBO transaction in this study is necessary. Indeed, regulatory differences between countries make a definition based on the structure of the deal inapplicable in all contexts. A clear example is given by the collateral issue: it is forbidden in France to take the asset of the target as collateral for the debt, while that is the fundamental principle of a US LBO. Nonetheless, LBO transactions happen in both countries. I therefore define a LBO as a leveraged transaction in which the acquirer is not motivated by synergy or discipline, but by financial profit: he uses the purchase of the target as an alternative investment vehicle, in order to generate returns, like another financial asset. The acquirer's identity is not important in this definition: it is possible for an industrial firm to engage in this type of transaction. However, in order to make this research possible, I restricted my sample to financial bidders (defined below). They are indeed the most likely to fit the criteria defined above, while the distinction between financial and synergy motives for an industrial would be unclear.

#### **Differences with a regular acquisition (target, bidder, objective)**

Although LBOs are part of the M&A activity, they constitute a distinct category of acquisitions. Several authors have tried to define what distinguishes LBOs from the rest of acquisitions. A first characteristic lies in the transaction type: according to Weir, Laing and Wright (2003), the deal structure is a major difference between regular acquisitions and

LBOs. The latter are usually funded by a private equity firm and involve a higher proportion of debt compared to cash or stock funding in regular acquisitions.

LBOs also differ from regular acquisitions by the target's nature. Jensen (1988) points out that ideal LBO candidates generally are "firms or divisions of larger firms that have stable business histories, low growth prospects and high potential for generating cash flows; that is, situations where agency costs of free cash flows are likely to be high" (p 37). This is in contrast to regular acquisitions, for which poor prior performance is significantly related to the probability of a takeover (Palepu (1986)). Fox and Marcus (1992) confirm this definition with the list of KKR's criteria used by the buyout firm in chasing a target: the target must have a history of regular and consistent cash flows (CF) (therefore avoiding young and rapidly growing industries), and they must show a real potential for growth without swing cycles in profitability and no characteristic that could make free CF (FCF) uncertain (product subject to rapid technological changes, weak brand mark or market position, high costs producers, etc). Weir, Laing and Wright (2003) even add that stock markets expect LBO targets to have poorer future growth, making them less attractive on public markets. Stability and potential for improvements seem to be the major requirement to designate a LBO target.

Ownership structure is also important in the likelihood of acquisition through a LBO. According to Gedajlovic and Shapiro (1998): "The most important differences in the operation of the Market for corporate control emerge not from public policy differences, but from differences in corporate ownership and control" (p 538). Lai and Sudarsanam (1997) hypothesize that the restructuring decision is based on the ownership, corporate governance and lender monitoring of the target. Weir, Laing and Wright (2003) find no evidence of particular governance structures among LBO targets, but find higher insider and institutional

shareholding. Andres, Betzer and Hoffman (2003) mention that a dispersed ownership will tend to attract LBO bidders, since there is more potential to reduce Agency conflicts.

Weir, Laing and Wright (2003), when listing the differences between public to private (PTP) transactions and the rest of acquisitions in the UK, point out a new difference which contradicts the traditional agency hypothesis: they state that the “management team is, at least partly, responsible for the decision to change ownership and one of the main objectives is that the team will remain in place post-PTP” (p 7). The issue of management behavior and skills is the main divergence between European and US literature, since in the US, it is implied that the management is removed from the target after the LBO. If the management stays, it means he takes part of the transaction, which is in that case called a MBO. This distinction in Europe seems vaguer, since academics as well as professionals seem to consider that any type of leveraged buyouts requires the complicity of the former management (a professional from Aforge Finance, a major firm of the French mid-market, even insisted during an informal discussion on the fact that the management had to be competent, because he was then needed by the financier to lead the firm through the restructuring). This difference will be discussed later in this paper.

Fenn, Liang and Prowse (1995) also mention an interesting point: they say that since private equity finance is one of the most expensive forms of finance, firms that use it through a LBO will tend to do so because they have limited access to public markets.

Little research has been done on the LBO bidder's characteristic. However, based on the hypothesis that financiers are the most likely to be LBO bidders, informal discussions with professionals in the LBO market (GE Capital) have allowed me to list the financiers' attributes versus a regular company. First, financiers have a short horizon perspective: they



tend to project an exit 5 to 8 years after the transaction. This means their incentives to restructure and produce fast CF are much stronger than industrials, and results in much more expeditious solutions (elimination of working capital, build up with external or organic growth, etc.). It also means that financiers may have a higher cost of debt than industrials, since they will tend to prioritize the speed of access to liquidity searching for better credit terms. They also expect much higher returns from their acquisitions, a common targeted IRR in a LBO is 25%, compared to 8% in an acquisition by an industrial. An expected IRR of 25% is consistent with the venture capital (VC) literature: Cumming and MacIntosh (2004) finds that the average return to VC investment in the US is a little more than 35%, while the Venture Economics (2000) reports a 25.2% five-year return (1995-99). Gompers and Lerner (1997) find an arithmetic average annual return of 30.5% gross of fees from 1972 to 1997, and Ljungqvist and Richardson (2003), who observe the venture fund investments of one large institutional investor, find a 19.8% IRR. Prowse (1998), show that in 1990 and 1991 the VC average IRR was 24.1, while the nonventure capital Private equity limited partnerships IRR was 28.9%. He points out that these returns are much higher than in the public equity markets, where the returns are around 13%. Finally, Kaplan and Schoar (2005) find an IRR around 19% on average for buyouts funds. The views of professional of the private equity market returns seem therefore consistent with academic findings.

Financiers usually act fast, while industrials will tend to take more time to take their decision: this can have a decisive impact on the transaction, since potential sellers may sometime prefer a lower premium now to a higher premium latter. A last but not negligible difference between financiers and industrials is the motivation: as Weir, Laing and Wright (2003) point out, a takeover is usually said to be motivated either by synergies or by discipline, whereas neither of these two motives really apply to LBOs. It is clearly not for synergies, since the

buyer does not intend to combine the target with a complementary firm, and the question of discipline remains unclear whether we refer to European or US literature. As I already mentioned in my definition of a LBO, the most popular motivation for this type of transactions would be financial profit.

### **LBO activity in France, Germany and US for the last 20 years**

The historical LBO activity in the USA has been widely studied, and can be summarized in three main eras: a growing trend in the 80's peaking in 1988-1989, ended by a crash in 1991, a quasi null activity in the 90's, and new growth beginning in 1997. Since that date, the number of LBO transactions and their value have kept growing, though not reaching the heady levels of the 80's wave. **Figure 1**, taken from Renneboog and Simons (2005)<sup>1</sup>, clearly shows these three critical phases. The incredible rise of LBOs in the 1980's has found several explanations in previous literature. One explanation Jensen (1991) gives is the inability of American corporate governance to solve for excess capacity, which led to a wave of restructuring. Shleifer and Vishny (1990) affirm LBOs were a good way to reverse the conglomerate trend of the 60's and 70's, while several authors (like Lipton (2001) or Brewster, Stearns and Allan (1996)) have cited financial innovations and market receptivity as a major factors allowing a greater number of agents to participate in the market for corporate control.

The crash that resulted from increasing bankruptcies, political pressure and too high levels of debt (Shleifer and Vishny (1991)) favored a wave of anti-takeover activism, with the creation of new legislation to prevent acquisition and leverage abuses. This mainly explains the 1991-

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<sup>1</sup> Attention has to be paid on the graphs taken from Renneboog and Simons (2005): they only take into account the public-to-private transactions, which are only a part of the LBO activity according to our definition. Nonetheless, they give a global idea of the evolution of this type of transaction, knowing that information on privates markets are hard to obtain.

1996 low activity. The new rise of LBO volume and number since 1997 may have been caused in part by the new regulations, such as the Sarbanes-Oxley Act, that makes it more difficult and expensive for middle to small firms to stay listed on public markets, forcing them to adopt the strategy of going private to avoid these costs.

Just like many other US trends, the LBO activity has invaded the UK market quickly after its start, but has only started in Continental Europe with a lag. Also from Renneboog and Simons (2005), **Figure 2** shows how late this type of transactions has started compared to the US. This lag is mainly explained by the difference in culture and functioning of financial markets, actors' behaviors (for example, "the Centre for Management Buyout Research (CMBOR, 2002) reports that only few private equity houses would consider undertaking a potentially risky and costly public-to-private transaction in Continental Europe", (Renneboog and Simons (2005)), legal and fiscal regulation (mostly Civil Law), or lack of exit opportunities for the investments on often illiquid markets. However, unlike in the US, the late 1990's wave has been considerably higher than the one of the 1980's. A reason could be the development of European markets with a common merger regulation, which tends to favor the use of LBO or MBO transactions (for example, the Dutch Fiscal Unity Law, started in 2003, makes the use of LBOs more attractive, or the French change of usury law of 2003 (Fried and Frank (2003), which gives more liberty to French investors under other jurisdictions).

In conclusion, if LBO activity has evolved differently in the US and in Continental Europe for the last two decades, a significant rise can be observed on both continents in the last seven years. The next part reviews the hypotheses proposed by academic literature of the last twenty years.

## **LBO gains sources: several competing hypotheses**

Several competing or complementary explanations for LBO triggers have been discussed by numerous academic authors. This part briefly reviews the main 6 hypotheses:

- Principal-Agent Agency (PAA) problems hypothesis
- Tax Saving hypothesis
- Takeover Defense hypothesis
- Undervaluation hypothesis
- Wealth Transfer hypothesis
- Transaction Costs hypothesis.

### 1) PAA hypothesis

Jensen and Meckling (1976) were the first authors to formalize the costs inherent to a typical “Berle and Means (1932)” organization, in which ownership is dispersed and management is distinct from shareholding. If the manager’s compensation is insufficiently linked with the firm’s performance, its interests will tend to deviate from shareholder’s value maximization, which creates a cost for the firm. This conflict between two self-interested parties wishing to orientate the corporate strategy according to their personal interests is accentuated by the Free Cash Flow (FCF) problem. This concept is now well known in literature. Jensen has discussed it in several publications (1986, 1988, 1989). He defines FCF as “cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital”, and shows that the more FCF a firm has, the more severe the conflict of interest between managers and shareholders. Furthermore, a dispersed ownership has limited control over the manager’s actions because no individual small shareholder would pay a high cost by himself to provide monitoring that would benefit

all the shareholders. Grossman and Hart (1980) have described this free-rider problem which results in underinvestment in monitoring for widely held firms.

The so-called Principal-Agent Agency (PAA) hypothesis has often been cited as a reason for firms to undertake a LBO transaction. For example, Jensen (1989) shows that the “LBO Association”, constituted with the LBO partnership, the new manager and the institutional investor, is the most efficient arrangement to solve for divergent interests, FCF problems and monitoring. A LBO transaction firstly creates a strong relationship between pay and performance in the management incentives: the manager (former or new) of the new entity usually has a significant personal stake in the investment, which reduces the gap between shareholders and managers. Then, Jensen (1986, 1988) affirms that to get rid of PAA costs, the main strategy is to reduce the manager’s power by reducing the scope of CF he controls. The regular way to do that would be to distribute dividends; however it is hard to force managers to distribute future dividends, especially when monitoring is weak. A solution for that problem is what Jensen calls the “control hypothesis” for debt creation: by paying shareholders with debt, managers are forced to respect their engagement to pay out future CF, since creditors have the right to take the firm into bankruptcy. This threat makes debt an effective way of reducing PAA costs. In LBO transactions, managers are tied to debt contracts and consequently have no choice but to take the optimum decisions to generate the future CF. Finally, PAA costs are also reduced with LBOs by the increase of monitoring of the manager: the financier, generally main shareholder, controls the board and most of the time has members in the executive team. As a result, Jensen shows that LBOs create wealth, i.e. by reducing the conflict between shareholders and managers, as well as its costly consequences, by increasing debt, reinforcing monitoring and aligning managers’ interests with those of the firm thanks to a compensation linked with performance.

The PAA hypothesis as a major cause of LBOs has found broad support in the literature, for example see Fox and Marcus (1992), Opler and Titman (1993), Lehn and Poulsen (1989), Lang, Stulz and Walkling (1991), Andres, Betzer and Hoffman (2003), Nikoskelainen and Wright (2005), Mehran and Peristiani (2006), among others. They have found empirical evidence with US data that PAA costs are a major motivation for takeovers in general and LBOs in particular, since a change in ownership and a restructuring help to either remove the inefficient manager or align his interests with the shareholders'.

## 2) Tax Saving hypothesis

Tax collection lies behind every type of taxable transactions, more so with a leveraged transaction. Thus, the "leverage" effect of a LBO exists on two main levels:

- Financial leverage: as reviewed by Thoumieux (1996), the first leverage effect in a LBO lies in classical financial theory, which allows the investor to "finance the development of one's company with other's money". In other words, financing a project with debt, and therefore reducing the amount of equity the investor has to put, has a positive effect on his return (with an increase in risk) as long as the cost of debt is lower than the IRR. The debt leverage is limited by the target capacities to repay the debt and by the risk banks are willing to take (and therefore the amount they are willing to lend).
- Fiscal leverage: debt is tax deductible, so that the state, by allowing a tax shield, reduces the cost of the debt, and therefore contributes to the financing of the target. Knowing the legal rules and financing accordingly is part of the creativity function of the investor.

Therefore, given that one of the two “leverage effects” of a LBO is fiscal leverage, it is even more interesting for a buyer to increase the level of debt if the tax system allows for high tax savings. Fox and Marcus (1992) have reached the conclusion that the occurrence of LBOs is positively related to the expected future tax of the operation. Le Nadeau and Perdreau (2004) also find that the likelihood that a firm becomes an LBO target is positively related to its level of income taxes. The tax system will also influence the structure of the deal through its effect on the seller’s income and capital gains. The tax system will therefore motivate the decision as well as the structure of the transaction.

Several authors have proposed the Tax Saving hypothesis as a source of value creation in a LBO transaction. Kaplan (1989) shows that the estimated tax benefits in the US of LBO transactions from 1980 to 1986 range between 21 and 52% of the acquisition premium. Lowenstein (1985), Marais, Schipper and Smith (1989), and Frankfurter and Gunay (1993), opponents of LBOs, attribute the entire gain of the transaction to tax savings. Based on the previous definition of LBO leverage, one can hardly contest the benefit of the tax savings. Nonetheless, even some of these authors (Kaplan (1989) for instance) also agree on the fact that wealth is also created in LBOs, and that tax-shield cannot be the only reason for going private in a leveraged transaction.

### 3) Takeover Defense hypothesis

The idea that some corporations have been using LBO or MBO transactions as a defense against the threat of a takeover has been proposed by several authors, such as Lowenstein (1985), Michel and Shaked (1986), and Fox and Marcus (1992). Stulz (1988) shows that when a certain level of management ownership is reached, the manager is too entrenched to allow a potential investor try to take the firm over. A MBO would allow the manager to stay in

control and keep his position. However, this solution means the manager must engage a high stake of his personal wealth, and will impose a high risk for the outside manager (Halpern, Kieschnick and Rotenberg (1999) and Hubbard and Palia (1995)). It is therefore hardly conceivable to attribute the reason of undergoing a LBO only to the reaction to a takeover threat.

#### 4) Undervaluation hypothesis

Still opposed to the concept of LBOs, Lowenstein (1985) also argues that the asymmetric information between insiders and outside investors is a reason for firms to decide to do a LBO transaction. The management, knowing that the firm has some potential the market ignores, decides to take the firm private, thereby profiting from the lower price. This is supported by Kaestner and Liu (1996) who find that MBOs are preceded by high inside trading volume, whereas DeAngelo (1986) finds no evidence of manipulation from the management. Fox and Marcus (1992) also support the undervaluation hypothesis: they affirm that going private is a way for managers to signal information about the firm's value that they could not credibly signal on the public market.

#### 5) Wealth Transfer hypothesis

This hypothesis suggests that wealth gains to shareholders in a LBO transaction are mainly due to bondholder expropriation. However, this argument is not supported by empirical results: Marais, Schipper, and Smith (1989) do not find abnormal bond returns for US firms that went private between 1974 and 1985. Travlos and Cornett (1993) find significant results (loss of 1.08% after the transaction), but only have ten firms in their sample, which questions the validity of this result. This hypothesis does not have much support.



#### 6) Transaction Costs hypothesis

As seen before in the history of the US LBO activity, new regulation has made being listed more and more expensive, a cost that small and medium firms can not always afford. DeAngelo, DeAngelo, and Rice (1984) have underlined the high costs of keeping the firm listed on public markets. This could also be proposed as a reason for these firms to decide to go private.

Although several competing hypotheses exist, the PAA theory seems to be the most accepted in North American literature. However, sources of LBO gains seem to diverge with the national context of the study. The most obvious example, as I have mentioned in the distinction between LBOs and regular transactions, is the role of management in the transaction which becomes rather unclear when I start to compare US and European studies. The PAA theory implies that the management is the source of problem, making this theory inapplicable for LBOs if, as European studies seem to affirm, the target management is not only efficient, but stays after the transaction.

It would be logical to suppose that two different markets, with their own particular features, would have different advantages and weaknesses. Indeed, the governance problems we observe in the US market are due to the specificities of ownership structures, which are themselves consequences of the legal environments. It is therefore plausible to suggest that stylized facts that apply in the US markets won't always apply when considering European markets. The next part intends to review these differences and analyze the way they can influence LBO activity.

## **Part II: Legal Environments and consequences**

### **Legal system differences between France, Germany, and the US**

Markets are different around the world. We do not observe the same behavior and developments between Asia, Europe or America. The major driver of a market structure is the legal origin and historical context in which they were created. The two main streams of law are defined as Common Law, adopted by Anglophone countries, versus Civil Law, itself split in three main forms: French Civil Law, the original form created under Napoleon Bonaparte, the German Civil Law, and the Scandinavian Civil Law. La Porta et al. (1997) explain that the main distinction between the models lies in the fact that

Common Law has developed as a defense of Parliament and property owners against the attempts by the sovereign to regulate and expropriate them, while Civil law, in contrast, has developed more as an instrument used by sovereign for the state building and controlling economic life (p 224).

These two mentalities have major impacts on the development of the economies they control, particularly for corporate governance: firms have to adapt to the limitations of the legal system they operate in. Corporate laws also differ from one system to another, since they are part of the commercial codes in Civil-law countries and exist as separate laws, mainly in the form of acts, in Common-law countries.

Much work has been done on the consequences of legal origin. Major contributors in that area are La Porta R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny, who have published several articles on the subject. Their article published in 1998 particularly assesses the relationship between legal origin and the quality of investor protection. They show that being a shareholder or a creditor means different rights according to the legal system in

which the investor acts. These rights are determined by laws, and not by the security itself. Their main findings are that Common-law countries offer a package of laws the most protective of shareholders, while French-civil-law countries afford the worst legal protections to shareholders. Although a little better, German-civil-laws are not particularly protective of shareholders either; Scandinavian-civil-law, though not as good as Common-Law countries, have the best protection of all three Civil-law variations. Investor protection and legal environment are a source of many differences among countries' economies.

### **Consequences on markets developments**

The legal system influences several aspects of a country. A major consequence can be observed on public equity markets: La Porta et al. (1997) and La Porta, Lopez-de-Silanes, and Shleifer (1999) find that equity markets are broader in countries with good legal protection of minority shareholders. They find that on all measures, Common-law countries provide companies with better access to equity finance than civil law countries, and particularly French-civil-law countries. German-civil-law and Scandinavian-civil-law are both better than the French version, but still not as good as Common-law countries. They conclude that the low shareholder protection may be the reason why countries with a particular legal origin have smaller equity markets as well as lower access to equity finance for firms.

The legal environment also has an impact on debt markets. Again, La Porta et al. (1997) find that debt finance is more accessible in Common-law countries than in French-civil-law countries. A different pattern however is found for German-civil-law countries, where they find that indebtedness is even higher than for Common-law countries. This constitutes an unsolved question, since apart from that, it seems that there is still an association between

low rights and low liabilities when comparing French and English origins. La Porta et al. (1999) find that the general protection of creditor rights occurs more frequently than the protections of shareholder rights.

Globally, La Porta et al. (1997) conclude that the size and development of both equity and debt markets are directly linked with the level of investor protection. Countries whose financial system offers entrepreneurs better terms of external finance (debt or equity) would allow more firms to access them. Common-Law countries offer better legal protections and a good quality of law enforcement, and consequently enable shareholders and creditors to offer funds with better terms, thereby providing more external finance to their local companies, resulting in more developed capital markets. In contrast, countries with poor protection have less developed debt and equity markets.

Underdeveloped equity and debt markets have several effects on the rest of the country. First, they affect the economy: La Porta et al. (1997) find that economic efficiency and development is positively related to the quality of government. They define good economic institutions as the union of the following factors: limited government, relatively benign and uncorrupt bureaucracy, a legal system that protects property rights and enforces contracts, and modest taxation and regulation. They show that better developed financial systems show superior growth in capital intensive sectors. As the development of capital markets is affected by the quality of investor protection, we can say that countries with poor investor protection will also tend to have a less performing economy.

The legal environment, through its effect on public markets developments, also impacts the development of private equity markets. As Marti and Balboa (2000) explain, private equity is used for slightly different purpose in the USA and in Europe: in US, it is mostly in venture capital activities, i.e. for investments in start ups and high growth industries. In Europe, the

lack of development of the public capital markets has prevented an appropriate environment for VC and IPOs to develop, so that this activity has been rapidly deserted. European private equity includes a more general description of any investment in non-quoted companies that are at different stages of their life. These private investments are mostly used for buyouts. Private equity in Europe is perceived as an alternative asset class for underdeveloped public markets.

### **Consequences on ownership structures**

Not only the legal system influences the markets, but it shapes the behavior and structural patterns of the local firms. Indeed, as Denis and Denis (1994) point out, firms adapt to their environment by choosing the most efficient structure in the national framework. La Porta, Lopez-de-Silanes and Shleifer (1999) find in a cross sectional analysis of corporate governance that ownership concentration is a direct consequence of poor minority protection, and that no other explanation for the incidence of widely held firms is as good as the quality of investor protection. A country's dominant ownership structure is primarily a response to the legal environment the country offers and maintains. If their rights are poorly protected, the best solution for owners to defend their property is to acquire more shares and become large shareholders. Bebchuk, Kraakman, and Triantis (2000) describe even more extreme effects of legal environment when they discuss what they call "controlling-minority structures", in which the main shareholder only owns a small fraction of equity but controls the company through various mechanisms. This is rather common outside the USA, and is a direct effect of the lack of minority protection. This effect is supported by Modigliani and Perotti (1997) when they affirm large groups generally controlled by a family held holding, are a way for these investors to create private capital markets where all subsidiaries have the

opportunity to access capital within the group. More simply, investors in this type of country will tend to circumvent both the lack of protection and the underdevelopment of capital markets by creating concentrated ownerships.

Ownership concentration itself has an effect on financial markets. First, Bolton and Von Thadden (1998) and Holmstrom and Tirole (1993) find that greater market liquidity is directly caused by higher ownership dispersion. The more widely held firms in a market are, the higher the turnover, and investor control is often exerted through the threat of takeovers. In contrast, countries where share-ownership is more concentrated present much lower turnover and higher control by the largest shareholders and creditors. Shleifer and Vishny (1997) find that Germany, France and Japan particularly illustrate that latter type of country. This direct relationship is also supported by Pedersen and Thomsen (1997), who explain the USA ownership pattern with the positive correlation of dispersion with size and liquidity of the stock market.

### **Portrait of the three countries**

The scope of my study includes one country applying Common-Law, the USA, and two countries with Civil-Law, France and Germany. This will allow me to examine the consequences of the two legal systems on ownership structures and the sources of LBO gains, based on the review of previous research on that subject. In this part, I draw a portrait of each of the three countries, based on previous literature about legal systems and ownership patterns. Gedajlovic and Shapiro (1998) have conducted a very complete study on the differences between the USA, Canada, UK, France and Germany, and **Table 1** is based on their findings. Several other studies confirm their findings, for example Andres, Betzer and Hoffman (2005), Pedersen and Thomsen (1997), Thomsen and Pedersen (2000), Betch

and Mayer (2000), and Bolton and Von Thadden (1998). I will further discuss particular aspects of each country that are not in this table.

The distinction between internal vs. external control according to Gedajlovic and Shapiro (1998) lies in the entity responsible for monitoring the management: if it is internal, it falls to insiders (shareholders, board), while external control relies on “market based measures to align the competing interests and thus, when effective, render monitoring of managers unnecessary” (p 536). This means shareholders rely on markets, such as the market for corporate control, to discipline managers that are not maximizing value.

#### 1) USA

As shown in **Table 1**, the USA is a typical Common-Law country, with all the features it implies: good minority investor protection and strong law enforcement, widely developed equity and bond markets, active market for corporate control, and generally dispersed ownership structures. Most investors are individuals or financial institutions, and the general consensus is that they rarely hold controlling stakes in firms' equity. However, some studies have found contradictory observations to that statement. As stressed by Stuart and Starks (2003), institutional investors adopt three main behaviors towards their investment: they can exit by selling their shares (or “vote with their feet”), hold their shares and monitor, and passively hold their shares. Historically, institutions have preferred liquidity, i.e. an exit strategy, to holding because it is not in their primarily interest to hold equity for a long time period (Stuart and Starks, 2003). Donaldson (1994) observes a change in those institutions' behaviors: since the 1980's wave, they tend to hold large positions in major corporations for extended periods of time. Stuart and Stark (2003) confirm the evolution of institutional ownership over the last two decades: in the US, in 2002, institutional investment represents

50% of equity ownership, compared to 6.1% in 1950. The phenomenon also happens in the European Union, where the total financial assets held by financial institutions grew by more than 150% between 1992 and 1999. Therefore, by holding positions longer, institutions are willing to switch from an exit attitude to an active holding behavior. Nonetheless, the USA pattern is the closest illustration of the classical “Berle and Means” model, with clear separation of control and ownership, and investors who diversify their portfolios. Another interesting characteristic of the USA is the fact that internal monitoring is weak, because of the dispersed ownership; shareholders will tend to rely on an active market for corporate control to monitor managers.

## 2) France

France differs in many ways from the US. First, it is governed by French-Civil-Law, which, as I have mentioned before, is the worst case scenario for investor protection. It therefore has small capital markets, high ownership concentration, with the main owners being, in general, families, corporations or the State. Boards of directors are composed of workers and owners, which indicates that ownership and control commonly belong to the same agents. This is supported by Roosenboom and Schramade (2006), who affirm that owner-managers pursuing large private benefits of control are a typical characteristic of the country. As main owners, shareholders have a lot of power and do not rely on the market for corporate control to discipline managers. Takeover markets are, therefore, weakly developed, particularly because of the active intervention from the State against foreign investors. Pedersen and Thomsen (1997) support this, finding that foreign ownership is rather uncommon in France, as well as in Europe in general.



Betch and Mayer (2000) as well as La Porta and al. (1997) mention the complexity of French firms: owners commonly tend to use mechanisms such as pyramids, cross-holdings, inter-corporate shareholdings and dual class shares in order to keep control of their firms. Pedersen and Thomsen (1997) also find that the level of complexity of French firms is high, due to the use of holding companies by industrials to overcome financial constraints. A typical example of financial constraint in the French legal system is mentioned by Foster Reed and Reed Lajoux (1999), Reed Lajoux and Nesvold (2004) and Thoumieux (1996). The difference with the USA lies in the type of asset that can be secured, the method of transaction, the type of notice and the authority to whom notice must be given. Basically, in France, a firm is not allowed to use its own assets or to engage them in the objective of buying its shares. While in the US, debt can be secured by the target's assets (through the grant of fixed and floating charges on long term and short term assets), in France the assets of the target cannot be used either for the financing or the collateral of the debt. This has several consequences on the LBO structure. First, a fusion between the target and the holding company created for the purpose of the transaction is hardly possible in France, since it would be equivalent to the target granting a guarantee on its assets to buy its shares. The owners would have to be able to show that the fusion has motives others than making the target bear the consequences of the debt. This type of laws helps reinforce structural complexity.

In addition to the target's assets rule, the French legal system does not recognize the notion of group, so that the holding and the target remain two different entities. The combination of those two laws has an impact on the debt collateral: when the debt for the LBO is subscribed under the holding company name, the lender can only take a guarantee on the assets of the holding company. As the holding company usually does not have fixed assets

(buildings for example), the only guarantee it can give are the controlling rights of the target, allowing the lender to become the owner of the target in case of failure of the LBO. However, this guarantee is weak: first the target value is uncertain, since it is in a restructuring process. Also, the target's health is the key of the LBO success, and it is consequently the cause of a debt refund failure. If the lender cannot get his money back from the holding company, then the prospect of owning a financial distressed firm is not very interesting. Finally becoming a shareholder means a moving lower in the hierarchy of stakeholder priority. Collateral becomes problematic in a French context.

In short, France presents an interesting focus of study in the sense that it contrasts with the US in almost every aspect of the financial markets.

### 3) Germany

Germany, although very similar to France, has its own peculiarities. First, it has an even higher level of ownership concentration than France, mostly led by banks and powerful families. The system being dominated by banks, debt is the main source of financing for firms. Höpner and Jackson (2004) show that in 1998, 57 of the 100 largest firms had a major owner, while only 51 were traded on the stock market. The legal form GmbH requires that all owners give their approval for a stock trade, narrowing the development of open markets. Even among listed firms, only 51.2% of the shares of the 49 largest firms were widely held, showing that concentration is high even on public markets. Complex ownership, like in France, is common practice in Germany (Betch and Mayer (2000)). Banks being traditionally very powerful in Germany, German entrepreneurs have a relatively weak "equity culture", and tend to view public equity markets as a "ruthless Wild West" practice (Höpner and Jackson (2004)). This contributes to low participation in public markets.

Although higher than in France, Germany does not have a very developed takeover market. Höpner and Jackson (2004) find that mergers are mostly friendly transactions negotiated between large blockholders, usually for synergy motives more than for financial or disciplinary reasons. A typical aspect of Germany also contributes to the slow development of takeover activity: German firms are ruled under the “parity” codetermination rules, which gives enormous power to employees and can be a barrier to takeover activity. Furthermore, German accounting and disclosure issues are known for their particular lack of transparency, thus reducing the likelihood of attracting outside investors. Finally, the German culture of consensus contributes to the lack of development of takeover markets. The “consensus” orientation greatly reduces the problems between managers, employees and shareholders, and therefore would not justify a high external control.

Compared to France, Germany is less in opposition to the USA (the German-Civil-Law has been shown to have less negative effects than French-Civil-Law, La Porta and al. (1997)), particularly because of its strong debt market. However, it is very different when it comes to ownership structures and patterns, making this country another interesting pool of data.

### **Part III: Agency conflicts: PAA and PPA**

#### **Geographic trends**

##### **1) PAA in the USA**

As I have reviewed above, the definition of typical Agency costs, or Principal-Agent agency (PAA), has been broadly studied, starting with the original definition from Jensen and Meckling (1976). I will therefore only briefly review its characteristics. Agency lies in the difference of interests between managers and shareholders, which leads to a reduction of the

firm's value. This conflict was born from the common separation of control and ownership in the USA, and increased by the weak link between shareholders and managers. Because the typical American ownership structure is dispersed, diminishing shareholders' power, and because managers generally have personal interests that differ from shareholder's, PAA conflicts are more likely to happen in the USA.

Since ownership dispersion is a source of PAA conflicts, ownership concentration should be a solution. Indeed, the incentive for any of the small individual owner for monitoring is weak. Obviously, an individual investor will not be likely to endure the entire costs of monitoring and let the rest of other shareholder enjoy the benefit of better corporate governance; ownership concentration is therefore recommended because it allows shareholders to monitor their firms. Stuart and Stark (2003) point out that ownership concentration is associated with a higher degree of shareholder monitoring. This suggests that large shareholders in countries with concentrated ownerships would tend to apply stronger monitoring on management than in countries with widely-held ownership. Ownership concentration also leads to more monitoring because it is in large shareholders' interest to see their firms perform well. La Porta et al. (2002) call this the incentive effect of the owner-manager's controlling position. The effects of ownership concentration over shareholder monitoring is particularly illustrated with the shift toward more institutional ownership observed by Donaldson (1994) and Stuart and Stark (2003): since they are less free to sell or buy equity and are basically "stuck" with their shares, institutions are encouraged to monitor their firms. As Drucker (1991) points out, institutions became owners even if they didn't want to. The cost of monitoring thus becomes lower than the risk associated with a loss of liquidity, making them switch from an exit strategy to active holding with stronger monitoring of their firms.

Yet, this solution generates its own problems. If concentration is a good method to solve for PAA conflicts, it is likely to trigger another kind of Agency conflict: Principal-Principal Agency problems.

## 2) PPA in Continental Europe

While PAA problems have been broadly studied, Principal-Principal Agency (PPA) conflicts have only started to interest academics. Shleifer and Vishny (1997) were among the first to raise the minority expropriation problem: large shareholders have the power and the motivation to reduce agency problems, since they have sufficient control to have their interests respected by the manager. However, this control also brings them the means to have their own interests respected, which do not have to correspond with other investors' interests. Dharwadkar, George and Brandes (2000) were the first to use the term "principal-principal agency" (PPA) conflict to define this difference of interests between majority owner and minority shareholders. In other words, PPA occurs when the dominating position of major owners encourages them to take actions at the expense of minority shareholders, where these actions provide them personal gains that are higher than their personal loss. The result is a decrease in the total value of the firm.

Young and Peng (2003), based on La Porta et al. (1997, 1998, 1999, 2002)'s work, show that ownership concentration, when combined with the dominance of families and business groups ownership, leads to PPA conflicts. The influence of the identity of the owners on governance is not a new subject. Pedersen and Thomsen (2000) show that the strategy the owner adopts and the way he will exercise his power are greatly affected by his identity. In their review, they find that families are particularly attached to control, and focus on the long-term survival of the firm rather than value maximization. Gudmunson, Hartman and

Tower (1997) confirm that families tend to adopt strategies that significantly differ from other types of owners. More than just different strategies, previous authors have found several actions families as a main owner can undertake at the expense of the global firm: making non profitable transactions with firms that belong to relatives or associates (Chang and Hong (2000), Khanna and Rivkin (2001)), placing relatives in management positions instead of more qualified candidates (Faccio and al. (2001)), or adopting strategies to favor relatives, such as extreme diversification (Backman 1999).

Furthermore, Pedersen and Thomsen (2000) show that corporations also have a preference for control and majority ownership, because it helps them focus on business partner relationships. Controlling another firm allows internalizing transactions and facilitates knowledge transfers, but reduces flexibility and creates less efficient mutual monitoring. Banks also favor controlling stakes, and as they tend to give better credit terms to the firms they own, they consequently focus on credit risk more than value maximization, inevitably creating PPA problems. Finally, governments as main owners will tend to focus on social consequences rather than value maximization, since it is expected to correct for market failures and follow political goals. Pedersen and Thomsen (2000) therefore conclude that families, banks, corporations and governments are all good candidates to create PPA conflicts. Financiers are the only category of main owner who will focus on shareholder's value only, and will tend to hold small shares in several companies. The main sources of PPA are therefore ownership concentration and main owner's identity.

### 3) Evidence of the effects of PPA conflicts

Several examples of minority expropriation are demonstrated in previous research. The dividend puzzle exposed by Black (1976) and discussed by Shleifer and Vishny (1986) is one

illustration: while small shareholders, mostly individual, tend to prefer capital gains to dividends for tax reasons, large owners most of the time have corporate attributes and prefer dividends to capital gains. Small shareholder's interests are more respected when no dividends are paid. In practice though, most of firms distribute large dividends, favoring large owner's interests at the expense of minorities. Eckbo and Verma (1994) find that variations in dividend policies are partly determined by the variations in ownership structure, and that the magnitude of the cash dividend is positively related to the relative voting power of corporate or institutional owners. This supports the idea that conflicts between shareholders are reflected in the dividend policy. Furthermore, too much control for the owner represents a direct cost on the stock price. Roosenboom and Schramade (2006) show that "the power the owner gets from his cash flow ownership is negatively related to IPO firm value" (p 272), which means markets negatively value a firm with a concentrated ownership structure and that uses a mechanism to separate control and cash flow ownership (dual class shares, etc.). Furthermore, Bebchuk (1999) and Roosenboom and Schramade (2006) show that after the firm has gone through a IPO, the founder tends to maintain a lock on control so that he keeps private benefits. Such action is mainly realized through the separation of votes and cash-flow rights. Bebchuk, Kraakman, and Triantis (2000) reinforce the evidence that mechanisms that separate vote and CF rights create a cost for the firm, because it interferes in choosing investment projects, selecting investment policy and the scope of the firm, and choosing to transfer control, three major decisions in the strategy of the firm.

A concrete example that illustrates the cost of PPA conflicts is given by the benefit of a change in ownership that occurs in the sell-off of a division. Indeed, in contrast to a spin-off, which involves distributing the shares of the new company among the existing shareholders,

sell-offs requires relinquishing both ownership and control of the newly formed company. Following Jain (1985), it seems reasonable to assume that a sell-off decision is motivated by shareholders value maximization more than manager's interests, for two reasons: the high publicity around the transaction, which should motivate shareholders to remove the management if he does not act in their interests, and the fact that this decision generally requires the approval of the board of directors (BOD) and or the shareholders.

Most previous research on sell-offs show that this type of transaction has a positive impact on shareholders wealth. Jain (1985) shows that both the seller and the buyer experience positive and significant abnormal returns following the announcement of a sell-off. Particularly, he finds that, in contrast with spin-off divisions that tend to perform well prior to the transaction, sell-off divisions generally performed poorly before the acquisition. This is supported by the results of Khan and Mehta (1996) who find that the characteristics of sell-off divisions are poor profitability and poor discretionary cash-flows. They also find that the choice between a spin-off and a sell-off is made according to the level of operating risk of the division, and that a division with high operating risk is more likely to be sold to external investors. Finally, Hirschey and Zaima (1989) find that the market better rewards sell-off decisions when the seller has a concentrated ownership than when it is widely held.

These findings are consistent with the idea that the potential of a company can be restrained by the interests of its owner, and that there is a real gain for the company in changing ownership. Post-transaction performance improvements indirectly show that the potential of the spun-off firm may have been underexploited, while the link between market reaction and seller's ownership structure directly denounces inefficiency due to ownership concentration. The findings of Alexandrou and Sudarsanam (2001) also reinforce this intuition. Their results show that wealth gains for buyers are significantly influenced by the environmental,



firm-specific and transactional characteristics of both the buyer and the seller, implying that the identity of the agents is important to obtain gains from the transaction.

### **Costs and Mechanisms against PAA and PPA conflicts**

#### **1) PAA-PPA costs**

The distinction between PAA and PPA therefore lies in the identity of the party using its position in the firm to get private benefits, and in the identity of the party that is being expropriated from its rights. In the case of PAA, the manager is using the lack of internal control to satisfy his personal interest rather than maximize shareholder's value, thus reducing shareholders' wealth. In the case of PPA, the majority owner is using his controlling position to satisfy his personal interest, thus reducing minority shareholders' wealth. Young and Peng (2003) also point out that PPA often implies that the controlling shareholder is also the manager (typically family members, consensus, etc.).

PAA and PPA differ in the nature of the conflict, which leads to a difference in the nature and the magnitude of the costs they imply. Young and Peng (2003) are the first to demonstrate the differences between the two types of Agency. PAA costs, according to Jensen and Meckling (1976) are monitoring costs, bonding costs and residual losses due to the adoption of different strategies. However, these costs are not likely to be the same for PPA, since the environment that causes PPA is different from the one that causes PAA.

First, internal monitoring from minority shareholders is expensive: they are dependent on large shareholders' monitoring, and on the directions the latter give to the management, since they do not have a sufficient stake in the firm to absorb the cost of monitoring themselves (Shleifer and Vishny (1986)). Additionally, as major shareholders often are managers, they have more opportunities to circumvent monitoring mechanisms such as

boards of directors and labor markets (Dharwadkar, George and Brandes (2000)). Furthermore, monitoring from external markets is limited by the lack of liquidity that a concentrated ownership implies. Monitoring in a context of PAA may be expensive, but it is less likely to be as expensive as in PPA contexts.

Second, the divergence of interests between managers and shareholders lies in the fact that managers do not have personal interests to maximize the firm's value, as their ownership stake is usually negligible. This is of course not the case in PPA situations, where in contrast the main owner should focus on value maximization; the fact of being major owner itself should guarantee minority shareholders that he will not deviate from value maximization (La Porta et al.'s "incentive effect of the owner-manager's controlling position"). However, the existence of personal benefits of control eliminates this bonding, and minority shareholders can hardly modify it as shareholders could do with managers.

Third, main owners, especially when they are managers, have more power than simple managers to modify the strategy to satisfy their personal interests (I have reviewed earlier these abuses). PPA problems are also likely to increase the cost of equity capital, first because of the expectation of minority shareholders to get higher returns from stocks that are riskier due to less protection and suddenly, as CAMEY and GEDAJLOVIC (2002) show, main owners that are also managers will tend to distribute high dividends because they consider retaining earnings as too risky. Therefore the nature of PPA costs is different and it is likely that their magnitude is higher.

## 2) Mechanisms against PAA vs. PPA

As seen earlier, Agency theory has widely documented the effects of PAA problems as well as a variety of mechanisms to prevent or to correct them. Internal solutions include debt

(Jensen (1989)), executive compensation linked with stock performance (Jensen and Murphy (1990)), and monitoring from concentrated outside ownership (Demsetz and Lehn (1985)). According to Jensen (1989), a LBO transaction, with its debt burden, increases monitoring and incentive alignment and is the best solution to solve for Agency problems. External mechanisms also can correct for PAA, such as takeover threat (Jensen and Ruback (1983)), or product market competition (Jensen (1993)). These findings show there are means for shareholders to discipline managers that would be source of agency problems.

In contrast, minority shareholders do not have the same powers to defend themselves from controlling shareholders' abuses. Several authors show that minority investor protection relies on the legal environment: good protection of their rights depends on the legal definition as well as their enforcement (La Porta et al. (1997), Modigliani and Perotti (1997), Shleifer and Vishny (1997), La Porta et al. (2002) among others). In a context of poor minority protection, an investor in control has a complete power over the use of the company's assets, and is not restricted by law or contract obligations. Bebchuk, Kraakman, and Triantis (2000) show that in a context of separation of CF and control rights, only two constraints can reduce Agency costs: reputation and legal protections accorded to minority shareholders. Reputation seems to be a minor constraint, La Porta et al. (2002) stress that the financial incentive is the only factor that can moderate controlling shareholders. In theory, the temptation of expropriating minorities should be reduced by an alignment between CF rights and control rights: since a large shareholder controls the firm and also holds a large share of ownership, this should encourage him to maximize the equity of his firm. However, ownership concentration is often associated with systems to separate control and cash flow rights (La Porta et al, 1999), which allow the main owner to have the control without retaining the majority of cash flows. His interests will therefore lie less in the stock

price maximization, and more in his personal interests. When they face such mechanisms, it is unlikely that minorities will find a way to restrict large owners' actions (Bebchuk 1999). Most of the traditional mechanisms to correct for PAA are not effective anymore when it comes to PPA, minority shareholders have fewer possibilities to control major owners / managers behavior.

Therefore, the magnitude of PPA costs is expected to be higher than PAA costs, first because of the nature of these costs, and then because of the lack of defense mechanisms for minority shareholders against controlling shareholders. Especially in a context of poor shareholder protection, minority shareholders have fewer mechanisms to fight against abusive owners than shareholders towards management. There are ways to limit the loss due to PAA conflicts. In contrast, small shareholders with weak protection cannot discipline main owners, and are stuck with their share since few candidates are likely to buy their position.

Since they face no real limitation, large shareholders can act freely and enjoy large benefits at the expense of the global maximization without fearing a serious reaction from minority shareholders, since poor protection allows the dilution of their claims (Modigliani and Perotti (1997)). Large owners are able to freely get private benefits in PPA contexts, while the threat of disciplinary measures from shareholders and the outside market will tend to restrain the manager's actions in PAA contexts. This reinforces the idea previously introduced that the costs associated with owners' interests are likely to be higher than the costs associated with managers' interests, and explains why PPA problems should be given more attention than they have been until now.

In this paper therefore, I study the impact of the two distinct sources of Agency conflicts: PAA, due to a divergence of interests between managers and shareholders, and PPA, due to a divergence of interests between major shareholders and minority shareholders. Two main observations are obtained from previous analysis: first, due to different legal environments, PAA problems are more likely to happen in the USA, while the PPA problems are likely in Continental Europe. Then, because minority shareholders have less recourse against major owners than shareholders have against managers, PPA consequences on the firm value are expected to be higher than PAA consequences. Consequently, an external investor is expected to capture higher gains in a LBO in Continental Europe than in the USA. By studying the impact of the target's ownership characteristics on its abnormal returns at the time of the LBO announcement, this paper aims to bring empirical support for the links between Agency problems and LBO gains.

## **Section 3: Data and Variables**

### **Data**

The samples of mergers and acquisitions (M&A) and buyout transactions in France, Germany and the USA have been collected from the Mergermarket database. Part of the UK Mergermarket Group, it is an independent M&A intelligence tool used by financial institutions to originate deals. It provides proprietary intelligence on potential deal flow, potential mandates and valuations via a large group of M&A journalists and analysts, and possesses a large database of M&A transactions since 1998 covering Europe, Americas, Latin America and the Asia-Pacific region. The dataset has been constructed by first downloading the total number of M&A transactions from January 1<sup>st</sup>, 1998 to December 31<sup>st</sup>, 2004 in each of the 3 countries, then by eliminating the transactions which did not meet the following criteria:

- Classified as a buyout transaction.
- At least one of the bidders must be a financier.
- The financier must acquire the control of the firm in the transaction; if he already owned a stake in the firm before the transaction, it had to be a minority one.

Transactions were also eliminated because they belonged to the following categories:

- Lapsed and withdrawn deals.
- Deals with blank completion dates (until June 2004).
- Asset or division sale (the target needs to be a full company with distinct past performance).

I do not make any distinction between MBOs and LBOs, either for the US or the European samples, in order to keep consistency in my data. The management issue (whether it stays in place or is removed) constitute one of the main differences between US and European LBO definition; however, the broad definition I used to select my transaction should allow to have both types of buyout transactions in my samples, and better study the impact of ownership change.

The construction of the sample is presented in **Table 2**. In my sample of 66 public firms with enough active days (no more than 4 non trading days in a row), 3 firms were missing the necessary information to calculate their ROA on at least 2 years before the event. I have first included them in the sample, and run a first set of regressions with them and without the ROA variables. I then removed the 3 firms and run a regression with the ROA variables. For the full sample as well as the US samples, regressions containing the ROA variables were much more relevant, so I decided to only focus on these ones. Therefore, my final sample contains 63 firms, 5 French, 11 German, and 47 US firms, plus 21 secondary LBOs for which the previous acquisition price or the IRR was disclosed. The names of the firms are presented in **Appendix 2**, and ownership information about the secondary LBOs is summarized in **Appendix 3**.

Compared to other studies (see **Table 12**), my sample may seem a little small. The first explanation would be that other studies may not have used ownership and accounting information as much as I did. Looking for precise and private information limits the number of firms that can be included in the sample. Regarding the French and German samples, information is far from being easily accessible; even the study of Andres et al. (2005), which covered all Continental Europe countries, had only 35 firms from 1996 to 2002. The size of the US sample could be explained by two facts: first I used a European database to obtain all

the transactions for consistency reasons: it was more coherent to use the same database for all my countries. Mergermarket contains transactions in Europe, Americas and Asia, and is expected to capture the greatest number of European transactions. Securities Data Corp's (SDC) international merger and acquisitions database is an alternative; however its focus is more North American transactions. Since this study needed to maximize the coverage of European transactions; it was felt that Mergermarket would be more appropriate. Finally, the second reason is the time period: all US studies listed in **Table 12** are based on the 1980's LBO wave, which is known for its large pool of transactions. As I noted earlier, although we have observed a new LBO wave in the USA beginning in 1998, it is far from being as important as the previous one, thereby reducing the pool of available data for this thesis.

The announcement date, transaction type, and actors' identity have been obtained from Mergermarket. The transaction price, when disclosed, has been obtained either in Mergermarket or in national newspapers, online news or firm's websites. Accounting information for France and Germany has been collected from the Diane and Amadeus databases, both products of the Dutch company Bureau van Dijk Electronic Publishing (BvDEP), one of Europe's leading electronic publishers of business information. Accounting information for USA firms has been obtained from Bloomberg and Compustat.

Information on ownership structure and management compensation before and after the transaction for France and Germany has been obtained from Diane, Amadeus, local newspapers, the Paris and Frankfurt stock exchanges websites (when public), or the company's website and annual reports. Information on ownership structure before and after the transaction for the USA has been collected from the filings on the SEC website (Edgar database). Information on the previous acquisition for secondary LBOs was collected from



newspapers or in Mergermarket when available. Union manifestation after the transaction has been collected from local newspapers.

The corporate tax rates for France, Germany and USA were obtained from the Doing Business 2006, published by the World Bank Group in July 2005. Newspaper information was obtained in Lexis-Nexis Database, as well as in the online newspaper “Les Echos” for France. Finally, historical stock prices for all firms were collected in Bloomberg, as well as the 3 market index prices: SBF 120 for France, DAX for Germany and S&P 500 for the USA. The International Monetary Fund Long Term government bond total returns for the three countries were obtained from the Ibbotson database.

### Variables: choice and sources

I present in this section the variables I intend to use in my paper. The first important variable is the measure of the LBO gains: following most authors, I used the cumulative abnormal returns of the target’s stock price on the defined event window (see Section 5 for the event study details), the event being the public announcement date of the LBO. In theory, the reaction of the market to the unanticipated announcement of the acquisition of a controlling stake of the firm by a financier should be equivalent to the expected gain or the loss due to the changes this transaction will bring to the firm’s strategy and ownership. For the market model, I used the SBF 120, DAX and S&P 500 as proxies for the French, German and US markets respectively, and the IMF Long Term government bond total returns of each country as proxies for the risk free rates in the weekly and monthly regressions. I then regress on this gain or loss several measures of the ownership structure of the firm. My variables can be separated in three categories: measures of PAA conflicts,

measures of PPA conflicts, firm variables and control variables. These variables are summarized in Table 4.

### **Measures of PAA conflicts**

The FCF hypothesis proposed by Jensen considers that PAA costs are created by bad management decisions and CF retention: the management does not choose the investments that are in shareholders' interests, and does not distribute FCF to them. Therefore, firms with agency problems should present negative net present value (NPV) of investments and high cash flows. In contrast, if the firm had positive investment opportunities (i.e. positive NPV of investments), its management would be efficiently using its cash flows. With no positive investment opportunities, the management is supposed to distribute the CF to shareholders rather than invest in bad projects. Therefore, a firm with PAA problem would be identified if it has negative investment opportunities (bad management decisions) and high levels of cash flows (CF retention).

The variable most commonly used in literature to proxy for PAA is the Tobin's Q (see Lehn and Poulsen (1989), Lang, Stulz and Walking (1991), and Opler and Titman (1993), La Porta, Lopez-de-Silanes, Shleifer and Vishny (2002)), defined as the ratio of the market value of the firm's assets to their replacement cost. This ratio shows the level of investment opportunities: if more than 1, it should reflect positive NPV investment opportunities for the firm. Indeed, the market value of the firm is expected to be the value of asset in place plus the value of growth opportunities. With positive NPV projects, the market value of its assets is higher than their replacement cost ( $Q > 1$ ). Firms with a Q less than 1 are expected to have negative NPV investment opportunities, since their growth opportunities are non-existent: the cost of asset replacement is higher than their market value.

Computing the Q ratio is a cumbersome process. Lindenberg and Ross (1981) give an exact procedure for calculating it. They first calculate the market value of assets by the sum of the market values of the debt, the common stock and the preferred stock. The market value of debt requires information far too complicated to get for my French, German and US samples<sup>2</sup>. They then compute the replacement cost, which also contains information impossible to get in the scope of this study<sup>3</sup>. Chung and Pruitt (1994) define these measures as too “complex and cumbersome” and say that it is “highly unlikely that even the most dedicated of analysts would ever attempt to undertake them” (p 1). They therefore offer a simplified version that is a good approximation of Q:

$$Q = \frac{MVE + PS + DEBT}{TotalAssets}$$

MVE is the market value of common stock, PS is the liquidating value of the firm's outstanding preferred stock, and DEBT is the short term liabilities net of short term assets plus the book value of the firm's long term debt. In their paper on investor protection and corporate valuation, La Porta et al. (2002) also use a simplified version of the Q: they divide the market value of equity (proxied by the sum of the book value of assets minus the book value of common stock and deferred taxes plus the market value of common stock) by the book value of total assets. Following La Porta et al. (2002), I have proxied the market value of the firm's asset with the sum of the market value of equity and the book value of debt and divided it by the book value of assets to obtain a simplified approximation of the Tobin's Q.

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<sup>2</sup> Lindenberg and Ross (1981) define the market value of debt as

$$MVD_t = D1_t + DL_t \sum_{j=0}^{n-2} f_{t,t-j} \left\{ \left( \rho_{t-j} / \rho_t^e \right) \left[ 1 - \left( 1 + \rho_t^e \right)^{-(n-j)} \right] + \left( 1 + \rho_t^e \right)^{-(n-j)} \right\}, \text{ where } D1 \text{ is the}$$

debt that will mature before year t+1, DL is the long term debt maturing beyond t+1, n is the number of years for which the new debt is issued,  $f_{t,t-j}$  the fraction of reported long term debt issued new at time t-j,  $\rho$  the yield to maturity of a firm's debt at time t when the bond is rated Z.

<sup>3</sup> They also define the total replacement cost as the sum of the total assets, the net plant at its historical value minus its replacement cost, and the inventories at historical value minus at replacement value.

I did not take into account the deferred taxes, since this is one of the two main elements that drive the accounting differences between the US and France and Germany (the other being depreciation). TOBINQ is a dummy variable equal to 1 if the firm's Q is less than one, and 0 otherwise.

It would be logical to adjust the Tobin's Q for industries, since different industries might be at different stages of maturity, thus affecting their performance. La Porta et al. (2002) indeed adjusted the Tobin's Q by subtracting the world-wide median Tobin's Q for the firm's industry. However, they do not find significant difference when they use the Adjusted Tobin's Q in their regressions rather than the rough Tobin's Q, implying that this adjustment is not critical. With only three countries in my research, I considered adjusting my firms' Q for a country effect rather than the world effect, i.e. by subtracting the country median Tobin's Q, but this variable is difficult to obtain. I checked on several databases that have an international coverage (WorldScope, Bloomberg, Datastream, Fama-French, OECD, and former international papers), but they either do not have global data or it is limited (for example, there are only 4 types of industry listed for the US, France and Germany in Worldscope: Financial Services, Industrial, Transportation and Utility). Nonetheless, I adjusted for the industry effect by adding a dummy variable for each of my industries: AGR, CONSU, NRG, FINSERV, HIGHTECH, INDUS, LEIS, MEDIC and OTHERSER are dummies equal to 1 when the target's industry is either in Agriculture and Mining, Consumer, Energy, Financial Services, High Technology, Industry, Leisure and Media, Medical, and Other Services, and 0 otherwise. When they are all equal to 0, it means the target is in Telecommunications. The introduction of these variables reinforces my regressions, and is presented in Section 6.

To proxy for CF level, Lehn and Poulsen (1989) use the firm's "post-tax CF that was not been distributed to security holders as either interest or dividend payments" (p 777), expressed as a percentage of the market value of its equity. This ratio CF/EQ reflects the cash flows still retained in the company. A company with agency problems should have high CF/EQ ratios. Lehn and Poulsen (1989) find a significant relationship between the likelihood of an LBO and the CF/EQ ratio. They find that the mean value of CF/EQ for LBO targets was 0.119, while it was only 0.068 for control firms. I therefore hypothesize that a firm with PAA problems has cash flows that represent more than 10% of the market value of its equity. On the same way, firms without agency costs have a CF/EQ ratio less than 0.1. In this thesis, the CF of the company is proxied by its EBITDA of the year prior to the transaction. EBITDA is used as it is a common measure for all 3 countries, and the CF definition varies with the accounting systems. CFEQ is a dummy variable equal to one if the CF/Eq ratio is equal or more than 0.1, and 0 otherwise. AGENCY is a dummy variable that combine the values of both the firm's Q and its CF/Eq value: it is equal to one if the firm's Q is less than one and the cash flow ratio is equal or more than 0.1.

In addition to the Q and CF measures, I add a variable that proxies for management efficiency: MGTEFF is a dummy variable equal to one if the management has been replaced after the transaction and 0 if it stays in place. The fact that the management was the source of non value maximization, (either by retaining CF, taking bad investment decisions, etc.), is explicitly illustrated when the management is replaced by the financier after the transaction. The management compensation is another way to verify for the interests alignment between management and shareholders. The dummy variable MGTCOMP is equal to 1 if the management compensation before the transaction was not related to stock performance (i.e.

did not include stock options or other form of compensation linked to the firm's performance), and 0 otherwise.

### **Measures of PPA conflicts**

PPA problems can only happen with the presence of a main owner. I define the presence of a main owner according to La Porta et al. (1999): to be a main owner, a shareholder must have at least 20% of direct or indirect control. From the moment a shareholder other than the management has a stake exceeding 20%, the firm's ownership is considered as concentrated. The number of main owners is the number of shareholders controlling more than 20% of the firm. CONC is a dummy variable equal to 1 if the firm's structure is concentrated and 0 otherwise.

The main owner identity has been found in previous literature to play an important role on the firm strategy. For example, Gudmundson, Hartman, and Tower (1997) list the characteristics of family businesses that influence strategy (see their literature review). Thomsen and Pedersen (2000) also provide a very detailed study on the behavior and characteristics of each type of owner, as well as La Porta et al. (1999). A major conclusion that can be made from these readings is that a financier owner is the only major owner that is expected to focus on value maximization. All other owners, i.e. family or founder, bank, state or corporation, have different objectives that tend to increase the difference between the firm value and its optimum. This means that a main owner, if not a financier, is likely to create PPA costs.

Furthermore, Gedajlovic and Shapiro (1988), Pedersen and Thomsen (1997) and Betch and Mayer (2000) show that the ownership patterns in France and Germany are characterized by concentrated ownership where dominant owners are individuals or families, plus

corporations and State for France, and corporations and banks for Germany. This is consistent with the hypothesis of higher PPA costs in Continental Europe. At the same time, more dispersed ownership structures in the US (where dominant shareholders tend to be individuals and funds) supports the hypothesis that more PAA costs are likely to happen in the US. I constructed 5 dummy variables, FAMILY, FOUNDER, BANK, STATE, CORP and FIN, equal to 1 when the main owner or one of the main owners is respectively a family, the founder, a bank, the State, a corporation or a financier and 0 otherwise.

La Porta et al. (1999) have underlined the importance of the separation between control rights and CF rights as a tool for main owners to keep control of the firm. I use the presence of a mechanism to separate control and CF rights as a measure of minority expropriation. The four main mechanisms used, mainly in Europe, to guarantee more control to the main owner are defined below:

- Dual class shares: the system allows the owner of particular shares to maintain more control while having less capital rights.
- Chain of control: the ultimate owner uses several entities to directly own the firm.
- Pyramid (based on La Porta et al. (1999) definition): a firm's ownership structure is a pyramid if it has a ultimate owner (20%) and if there is at least one publicly traded company between it and the ultimate owner in the chain of 20% voting rights.
- Cross shareholding (based on La Porta et al. (1999) definition): the firm presents cross shareholding if it has a ultimate owner (20%) and the firm owns shares in its controlling shareholder or in a firm that belongs to her chain of control

Bebchuk, Kraakman, and Triantis (2000) support the major role of these mechanisms by showing that the cost of expropriation endured by the firm (or PPA) is increased with what

they call “controlling-minority structure”, i.e. when a shareholder has a small stake of the equity but controls the firm thanks to dual class shares, pyramid or cross-shareholding. They show that these costs appear in three important contexts in the firm strategy: choosing investment projects, selecting investment policy and the scope of the firm, and choosing to transfer control. To proxy for control mechanisms, I constructed one dummy variable MECHA, equal to 1 if there is a control mechanism in the firm and 0 otherwise. To distinguish between the control mechanisms, I use the following 4 dummies: CHAIN, DUAL, PYRAMID and CROSS, equal to 1 when the control mechanism in presence is respectively a chain of control, dual-class shares, a pyramid and cross-shareholding, and 0 otherwise.

Furthermore, the management’s stake before the transaction can be an indicator of the nature of the problem. Morck, Shleifer and Vishny (1988) find that the management stake in the firm is likely to create PAA costs if less than 6%, while it is likely to create entrenched management (which is in our case associated with PPA) if more than 25%. Shleifer and Vishny (1997) explain this by saying that “as ownership gets beyond a certain point, large owners gain nearly full control of the company and are wealthy enough to prefer to use firms to generate private benefits of control that are not shared by minority shareholders” (p759). First, MGTSTAKE represents the management’s stake in the firm before transaction. Then, I constructed 2 dummy variables to test the effects of management ownership. MGT6TO25 equal to 1 if the management stake is in the range 6 to 25% inclusively, and MGTMORE25 equal to 1 if the management stake before the transaction was 26% and more. To verify my hypotheses, these 2 dummies have to be combined with the ownership structure dummy, CONC; the interpretation of the six situations is illustrated in **Table 3**. The interpretation of C is not clear, since we do not know what kind of relationship there would be between a



strong owner and a medium manager. To check these results, I also constructed 6 dummies representing each of the 6 previous situations, A, B, C, D, E, and F, each equal to 1 when the situation is respectively A, B, C, D, E, and F, and 0 otherwise. A and B are equivalent to CONC and 1- CONC. I therefore used in my regressions the variables C and E or D and F. Pedersen and Thomsen (1997) find that firms owned by a family or founder, a bank, the government or a corporation tend to have low ROA, so low profitability. I conclude that a low ROA for a LBO targets can be sign of PPA costs rather than PAA. To measure that, I calculated the firm's ROA for the last 5 years, defined with the ratio of the net result of the firm over its book value of assets. I then constructed 3 variables: MEANROA, STDROA and ROACHANGE, respectively the mean ROA of the firm for the last 5 years (when available), the 5 year standard deviation of ROA (when available), and the change of ROA between the earliest and the most recent years available.

Finally, a contract with other stakeholders could be a source of PPA problem: if the controlling shareholder is stuck with a union contract for example, this will tend to influence its choice to the extent of value maximization. I therefore used the dummy variable UNION, equal to one if there was a sign of union resistance to the LBO announcement in the newspapers and 0 otherwise.

### **Firm Variables**

The 4 types of transaction are represented by 3 dummies: SBO is equal to 1 if the transaction is a secondary buyout and 0 otherwise, MBO is equal to 1 if the transaction is a management buyout (the management takes an active part in the transaction and a stake), and TAKEPRIV is a dummy variable equal to 1 if it is a going private transaction. If none of these dummies are equal to 1, the transaction is a simple acquisition (controlling stake or

100%) of the firm by a financier. BETAUN is a variable created to measure the riskiness of the firm's asset: it is the unleveraged beta, calculated with the following equation:

$$\beta_u = \beta_l \left( 1 + \frac{D}{E} (1 - t) \right)$$

The leveraged beta for each firm is obtained from the regression used in the monthly event study, i.e. from the following equation:

$$r_i - r_f = a + \beta_l (r_m - r_f) + \gamma_1 d_{1,i} + \gamma_2 d_{2,i} + \gamma_3 d_{3,i} + \varepsilon_i$$

With  $d_1$ ,  $d_2$  and  $d_3$  the dummy variables for the run-up, event and post-event windows,  $r_f$  the risk free rate and  $r_m$  the market return (see Section 5).

Finally, some firms had less than 5 years available for the calculation of the ROA ratio; in that case, the dummy variable LACK is equal to 1, and to 0 if the full 5 years are available.

### Control Variables

To control for the size effect of the firm, I included the variable MVEQ, the market value of equity, calculated as the price paid for the target's equity divided by the percentage stake acquired. This measure of the market capitalization has been chosen because it is the most available measure for the global sample of 165 firms (private and public). LOGMVEQ is the logarithm of the market value of equity. To control for the previous LBO activity, I use the variable HERD, which measures the percentage of buyout transactions out of the total number of M&A transactions in the country on the previous year.

Previous research has found that merger waves are directly linked with the market index return and the risk free rate, I included in my control variables the change in the country's market return QMR, and risk free rate QRF, two quarters before the transaction took place. For example, a French transaction taking place in February 2004 would have QMR equal to

the difference between the SBF 120 return of Q3 of 2003 and the SBF 120 return of Q2 of 2003.

Finally, previous research suggests an industry effect in the LBO activity; for example, Jensen (1986) and Lehn, Netter, and Poulsen (1990) find that some industries have particular characteristics that favor the likelihood of LBOs. One of these characteristics would be for example to generate enough cash flow to pay the LBO debt in the future. They find that LBOs are more likely to happen in industries with slower growth prospects and lower research and development (R&D) expenses. Although Brent and Winters (1992) do not find empirical support for an “industry effect”, they recognize that regulated industries show less LBO activity than others. The particularity of regulated industries are also pointed out by several other authors (see utility effect in Choi and Nam (1998), control for economic sector in Chong and López-De-Silanes (2002), and privatization in regulated industries (banking, transportation and utility) in Dewenter and Malatesta (1997)). Based on the definition of these articles (mostly international research), I consider Defense, Energy, Financial Services, Transportation and Utility as being regulated industries. I therefore defined REGUL, a dummy variable equal to 1 if the target belongs to one of these 5 industries.

The fact that my study uses international data has one major problem: because of different accounting standards, the income statements and balance sheets will tend to differ between the US, France and Germany. The main difference between the US GAAP and French and German GAAP lies in the treatment of deferred taxes and depreciations, which affects the EBIT, the net result, the total assets and the shareholder’s book value of equity. Although La Porta and al. (2002) find that accounting differences are “of limited importance” (p 1159) for the results, I have tried to measure the bias it could create.

In my paper, the variables likely to be biased with accounting differences are the CF/EQ, ratio the Tobin's Q and the ROA. Regarding the CF/EQ ratio, I have proxied the cash-flows by the EBITDA (operating result before depreciation and tax), the most common measure I had among my sample, and divided it by the market value of equity; it should therefore not be affected. Nonetheless, the Tobin's Q (because the denominator is the total assets) and the ROA (net result over total assets) may be biased. To obtain an insight into the nature of this bias, I have selected 4 French and 4 German firms that are listed on the NYSE, and consequently have to adjust their financial statements to the US GAAP (see **Appendix 4**). I used the SEC filings to get their net results, shareholder's equity, book value of debt and total asset for the 2 most recent years (either 2003 and 2004 or 2004 and 2005), both in the US GAAP and the French or German system. To calculate the approximate Tobin's Q, I obtained the market value of equity of each firm on 2006 because precise information on market capitalization for previous years is harder to get (this should not influence the results, since I am interested in the difference between US and France or Germany, and that the market capitalization does not change with accounting). Based on the SEC information, I find that the Tobin's Q is roughly the same for France and US and for Germany and US (only one firm in each country has a change in Tobin's Q). Regarding the ROA, the main variable I focus on is the change in ROA in the last five years (see Section 6). If we consider that the US system represents the true operating performance of the company, and that the difference with France or Germany is an accounting error, and assuming the errors are randomly distributed, I could argue that my variable ROACHANGE measures the change of this true operating performance. Based on the findings in **Appendix 4**, the ROA change of my 5 French firms seems to be understated compared to the US firms, while the ROA change of my 13 German firms may be slightly overstated. Therefore,

on the global sample, I assume that the European sample presents ROA changes with evenly distributed accounting errors, and that the observed change in ROA is equivalent for the three countries. The accounting bias due to different regulations does not seem to be critical for my results. To account for the regulation effect, I nonetheless introduced country dummies: FRANCE and GERMANY are equal to 1 when the target is respectively French and German, and 0 otherwise.

## **Section 4: Descriptive information**

### **Universe**

I present in this part information on my final sample (63) compared to the global universe of M&A transactions on Mergermarket (15,421 transactions), the total number of transactions classified as buyout transactions (1,930), the total number of transactions corresponding to my selection criteria (1,113), and finally the transactions for which ownership and accounting information was available (165). **Table 5** shows the subsample of transactions for each of the 5 groups by country, year, public or private, deal size and industry.

**Graphs 1 to 4** shows how each sample group is distributed between the 3 countries, the 7 years, public or private firms, deal size and the 14 industries. For example, the 3 dark bars in **Graph 1** indicate that 10.03% of the total M&A transactions in Mergermarket had French targets, 14.51% had German targets, and 75.46% had US targets. On the same graph, the 3 grey bars indicate that my final sample of 63 firms has 7.94% of French targets, 17.46% of German targets, and 74.6% of US targets, which is a close representation of the universe. More information was available for public firms, which explains why I have more public firms in my “transactions with available data” sample; and obviously, my final sample only contains public firms, since stock prices were required for the event study. Other than that, the general patterns are also similar for the year partition, the deal size and the industry repartition.

## Sample

The ownership structures and management ownership positions of my sample of 63 firms are described in **Table 6**. **Table 7** contains the same descriptive data for the sample of 165 firms for which I was able to get ownership information. This gives a general picture of the ownership structures of public and private firms in the 3 countries, and shows that my final sample is representative of the larger sample.

As expected, concentrated ownerships dominate in Europe, while dispersed ownerships are the dominant form in the USA. Not many firms used a technique for control such as dual class shares, pyramids, chain of control or cross-holding. Only one French firm, one German firm and 10 US firms had dual class shares, which is consistent with La Porta et al. (1999) findings: they find that the mean minimum percentage of book value of equity one needs in order to control 20% of the voting rights are 19.99%, 18.61% and 19.19% for France, Germany and the USA respectively, which is not very far from 20%. Besides, Rosenbaum (2000) finds that 218 out of 1900 US firms had dual class shares in 2000, which represents about 11% of the sample, while my US sample contains about 21% of firms with dual class shares; this is a somewhat higher, but still represents a minority of the global sample.

Firms with PAA problems characterized with both a low Q and a high CF/Eq ratio are quasi absent from the European sample, and only 5 US firms are in that category. Also, in both sample, most of the firms have kept their management after the transaction. This means that my sample is likely to contain fewer firms with PAA problems than expected. The next section presents the models used to further analyze this sample.

## Section 5: Event Study

### Model

The dummy variable approach has been used to run an event study on the firms' stock returns. Because of a lack of active days and weeks for certain firms (most likely due to the markets' degree of liquidity), I have conducted the event study on daily, weekly, second weekly (weekly data with different windows), and monthly data. I use the market model to calculate the abnormal returns (ARs) for each firm. The regressions used are:

For the daily sample:

$$r_i = a + \beta_1 r_m + \gamma_1 d_{1,i} + \gamma_2 d_{2,i} + \gamma_3 d_{3,i} + \varepsilon_i$$

For both the weekly and monthly samples:

$$r_i - r_f = a + \beta_1 (r_m - r_f) + \gamma_1 d_{1,i} + \gamma_2 d_{2,i} + \gamma_3 d_{3,i} + \varepsilon_i$$

The windows for each regression are the following presented in **Table 8**. In the dummy approach, if  $d$  is the dummy variable equal to 1 if the day belongs to the event window and 0 otherwise, the estimate  $\gamma_i$  of  $d_i$  is the average abnormal return for the event window for firm  $i$ .  $\gamma_i$  is associated with a t-test  $t_i$ , which remains the same when I computed the cumulative average abnormal return of window  $i$ ,  $CAR_i = n_i * b_i$  ( $n_i$  being the number of days in the window  $i$ ). For each firm, I obtained a cumulative abnormal return  $CAR_i$  for the window of observation  $i$ .



I then calculate the cumulative average abnormal returns  $CAAR_j = \frac{\sum_{i=1}^{n_j} CAR_i}{n_j}$  for each geographic region  $j$ , i.e. for France, Germany, Continental Europe and the USA,  $n_j$  being the number of firms for each region. The t-stat for each region  $j$  is calculated with the t-stats

of the firms of the region as follow:  $t_{CAAR_j} = \frac{\sum_{i=1}^{n_j} t_{CAR_i}}{n_j} * \sqrt{n_j}$ .

Once I have analyzed the results with the CAARs, I used the CARs of each firm as a dependant variable for the second step.

## Results

The results of the 4 event studies (including monthly data) are presented in **Tables 9 and 10**<sup>4</sup>: I have presented the results by countries (**Table 9**) and by region (**Table 10**), since the low number of observation in France and Germany could be a handicap. However, the t-stats in both tables show that the significance of the results is not really modified, since Germany is driving the Europe results. Moreover, because of the lack of significant results and relevance in the tests of previous part for the monthly sample (see **Appendix 6**), I will restrain further analysis to the daily and weekly tables. There are two weekly specifications, because I have tried different window definitions (as shown in **Table 8**): the “Weekly” test has a much longer estimation period and run-up than the “Second weekly” test. I tried to reduce these windows in order to have results more comparable with the daily test.

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<sup>4</sup> See notes for the samples used for each timeframe in **Appendix 5**.

A first interesting result comes from the comparison between the run-ups in Europe and in the USA. Indeed, the CAARs for this window are rather high for France and Germany, whether on daily (5.78%) or weekly data (10.75% / 8.47%, both significant), while they do not reach those magnitudes for the USA sample (daily: 1.76%, weekly: 3.94%/1.93%). This could mean that the information about the LBO was released before, maybe because the negotiations lasted for a longer period and were more publicized. Betzer (2004) argues that “insiders in Continental Europe use their personal information before the public is informed about the acquisition” (p 7). This could be logical that in countries with civil law, and therefore less shareholder protection, insider shareholders would have more opportunities and freedom to use private information to make profit, at the expense of minority shareholders.

These high run-ups are followed by very low abnormal returns on the event window in Europe (daily: 2.60%, weekly: 0.59%/-0.20% not significant), compared to the abnormal return of more than 21% (and significant) for the USA sample in the 3 frequency samples. I therefore ran the event study with only 2 windows, one including both the run-up and the event windows, in order to take into account the gains already incorporated in the price during the run-up period; the results are presented in **Table 11**.

Even after this change, the CAARs in Europe are lower than the CAARs in the USA, which comes in contradiction with the expected results that Continental Europe LBOs would generate more gains than USA LBOs. Indeed, if we compare the total CAARs from the day - 25 to day 2, thus taking into account the fact that the information is not incorporated at the same time in the price in Europe and in the USA, Europe has a significant CAAR of 14.22%, while the USA has a significant higher CAAR of 23.23%. However, this is not a surprising result when compared to two previous studies made on similar samples (common

law vs. civil law). For example, Betzer (2004) finds that the premium paid in Continental Europe for LBOs is 18.2%, while it is 44% in the UK. Andres et al. (2005) also find a CAAR higher in the UK (16.90%) than in Continental Europe (13.73%), both significant, although these results are less robust, given the small sample (12) in Continental Europe. These findings directly contradict the implicit predictions by La Porta et al. (2002), as well as my hypotheses based on the differences between Common and Civil law.

A first explanation could lay in the fact that my US sample has fewer firms with PAA problems than expected, so the high gain caught by the financier could come from another source. Also, this could be explained by the fact that PAA problems are underestimated compared to PPA problems. We have seen before that shareholders, in theory, have several ways to correct for an entrenched management, such as takeovers or debt. However, previous research has shown that managers have in practice many ways to bypass shareholder's will: Demb and Neubauer (1992) and Lorsh and MacIver (1999) show that shareholder's vote for directors is weakened by the fact that the proxy committee is appointed by the management, so that they basically have the power to design their successor. DeAngelo and DeAngelo (1989) show that shareholders only get one third on average of the board seats in a proxy fight, and Bebchuck (2003) shows that shareholders have, in the end, little chance to challenge the management, since they have several obstacles to circumvent in order to get rid of a director. Bebchuck (2005) also argues that shareholder do not have enough power to change a director in case a value enhancement measure has to be taken against the manager's will. Arena and Ferris (2005) support this, showing that if shareholders' voting is not without consequence on managers' behavior, managers can use enough stratagems to avoid monitoring from a dispersed ownership structure. Finding that firms with PAA problems are a high source of LBO gains would be consistent with the idea

that former shareholders, in opposition with my previous hypothesis, were not able to impose their will on managers that reduce the firm's value.

A last explanation could be that I only examined at the target gain, in opposition to the total gain equal to the sum of the target and the bidder gains. Supposing that US targets have higher bargaining power than French and German targets, they would grab more of the total gain of the LBO. In that case, this would be still possible that the total gain is higher in Europe, with financier investors grabbing more gains than in the US. This is an area of future research (see Section 7).

I find negative post-event CAARs for the 3 countries, although only the US sample presents a significant one. This is surprising, compared to previous results in US studies. For the US, some previous results are summarized in the **Table 12** (based on a table from Renneboog, Simons and Wright, 2005). We can see from this table that no previous study has explicitly found negative post-event CAARs: the 3 particular cases where post-event CAARs are negative are not significant, which do not allow us to conclude anything.

I double checked the results, and then did several tests (see **Appendix 7**). Even cleaned of outliers, the US sample still has a negative mean of -5.74%. I then checked the regression diagnosis of my 63 firms. I did the Durbin-Watson test for autocorrelation, and the White test for heteroscedasticity. Only one US regression presents autocorrelation, and 30% of the full sample and 29.17% of the USA sample have heteroscedasticity. I therefore run my regressions again with a White correction for heteroscedasticity, and obtained an even more significant negative post event AR for the US.

Schwert (1996) examines the “theoretical and empirical relations between pre-bid run-ups and post-bid markups conditional on various types of information that were available in the market prior to merger or tender offer bids” (p 155), using a sample from 1975 to 1991. He

tests whether there is substitution between the run-up period and what he calls the mark-up, i.e. a window including both the event and the post-event windows. The total premium is equal to the sum of the run-up and the mark-up. Using his model, I therefore regressed the run-up on both the mark-up and the premium (see **Appendix 7**), and found that my results are very consistent with his. The significant decrease after the LBO announcement in the US, though outliers partly explain it, seems therefore to be a new result. More research, beyond the scope of this study, has to be conducted on that subject.

The tests and analysis of the event study results brought four important results:

First, although this sample is not complete, the daily abnormal returns seem to be the most interesting to use for following regressions, since it is the most relevant of the four samples tested.

Second, the run-up abnormal returns in Europe are much higher than in the US, implying that a part of the effect of the LBO has been incorporated in the price before the announcement, most likely due to insiders using their private information to make profit.

Third, in opposition to what had been predicted, the abnormal returns, and therefore the gains of a LBO in Europe appear to be lower than in the US, which is confirmed by two other European studies.

Finally, post-event returns are significantly negative in the USA, even after checking for autocorrelation, heteroscedasticity and outliers.

## **Section 6: Regressions**

The event study allowed me to obtain a proxy for the LBO gains, i.e. the CARs of each firm on the event window. I then regressed the variables I defined earlier on the CARs of each firm, in order to determine what explains the abnormal return.

I have established two samples of data: the Full sample with the 63 transactions from France, Germany and the USA, and the US sample with only the US transactions. The French and German samples, even grouped, were too small to obtain significant results. The US sample serves as a control group, since it is the most studied sample of the 3 countries.

I first started by regressing the whole set of variables on the CARs, but some variables were redundant or insignificant. For example, no firm has been found to have either cross shareholding or a pyramid structure according to La Porta et al. (1999) definition, so I removed the variables CROSS and PYRAMID from the following analyses. For the same reason, I also removed the UNION variable. For the US, the only mechanism used was dual class shares, (and only one firm has a chain of control in Germany and France); I therefore removed DUAL and CHAIN from the US sample, keeping the MECHA variable. Moreover, still in the US sample, no firms were family, bank or state owned, so FAMILY, BANK, and STATE have been removed from the US analyses. In the Full sample, I have tried to group some the ownership identity variables; I find that in all cases, the explanatory power of the regression is higher when I use FAMFOUND (equal to one when the main owner is either a family or the founder) instead of FAMILY and FOUNDER, although it remains not significant. I also tried to use FINOTHER, a dummy equal to one when the

main owners were a financier and another type of owner, assuming it could have an impact on the LBO gains. However, it did not bring any explanatory power and was always insignificant, so I eliminated it from the model. Sixteen (all European companies) of the 63 companies had no information available concerning the management compensation previous to the transaction, and this variable has been excluded from the Full sample. However, the variable MGTCOMP did not bring any explanatory power and was always insignificant; I therefore also removed it from the US sample. Finally, I find that the use of LOGMVEQ instead of MVEQ brings a better fit of regression, so I eliminated MVEQ.

**Tables 13 and 14** present the best regressions obtained. For each regression, I have calculated the Durbin-Watson test for autocorrelation, the White test for heteroscedasticity, and plotted the residuals to test their normality. All of the 10 regressions presented in the two tables do not have autocorrelation or heteroscedasticity, and the residuals seem close to normal.

Regressions Full1 and Full2 (Full sample) and US1 and US2 (US sample) are the most complete model after the previous changes. I have then tried to reduce the model by eliminating insignificant variables; I find that eliminating CHAIN, DUAL, STDROA, BETAUN, LACK, QMR and QRF from the model increased the goodness of the fit of my regressions. Regressions Full3 and Full4, and regressions US3 and US4 present the results. Finally, as previously explained in Section 3, I have added the industry dummies to control for the possible industry effects on Q (Full5 and US5). The pattern of the result is the same, with most of the estimates and t-stats and the Adjusted R-Square clearly improved.

As we can see, the AGENCY variable is positive and significant for the US sample, as well as for the Full sample although the t-stats are lower. AGENCY is equal to 1 when both dummies TOBINQ and CFEQ are equal to 1, and these two variables are negatively related

to the CARs, although only TOBINQ is significant. This strongly supports the PAA hypothesis as a source of LBO gains: indeed, when both the Q of the firm is low and its CF ratio is high, the financier who takes the firm over is more likely to capture high positive gains. When only TOBINQ equals 1, it means the firm only has a low Q but also low cash-flows. In that case, the bad prospects for the firm are less likely to come from the manager's personal interest than from other reasons such as bad assets. If the firm itself is a bad investment, it is logical that the financier's gain is reduced. When only CFEQ is equal to one, it means the firm has a high Q and a high reserve of CF; in that case the manager can hardly be accused of satisfying his own interests, and leaves little room for a restructuring, explaining why CFEQ would be negative. Also, the intercepts are generally significant and positive; as this estimate shows information about a firm for which all dummies are equal to 0, it also represents a US firm with dispersed ownership, low management stake, with no main owner or mechanism for control, i.e. a typical Berle and Means (1932) firm. This suggests that these typical US firms, the most likely suffering from PAA conflicts, are indeed a great source of gain for financiers that would decide to acquire their shares or a controlling stake. These findings, particularly in the US sample, support the PAA theory as a source of gains in a LBO.

A second interesting result is the negative significance of ROACHANGE in both the US and Full samples. This means that a positive change in ROA in the last 5 years would have a negative impact on LBO gains, which may seem surprising at first sight. Nonetheless, this can be explained by the fact that a firm with an increasing ROA would have seen its stock price increase too, therefore reducing the jump on the day of the event; the market already values the firm well, and the gains from restructuring through a financier are expected to be lower than if the firm had not done well in the last 5 years. On the other hand, a decrease in



ROA in the years previous to the LBO would mean a decrease in the stock price, and a higher opportunity for the financier to make changes and improve performance, meaning more gains to capture. This results in higher CARs on the LBO announcement period.

One of the most interesting results is the relationships between CARs and management ownership variables. I have tried several different combinations between MGTSTAKE, MGT6TO25, MGTMORE25, and C, D, E and F. First, I find that the management stake is positively related with the LBO gains. When I regressed MGTSTAKE alone against the CARs, the result is highly significant and positive. The link between management ownership and LBO likelihood / gains has been studied in the UK by Weir, Laing and Wright (2003). They find that LBO targets not only generally had higher CEO ownership, but that shareholders of targets with lower insider shareholding received lower premiums in the transactions, which is consistent with my finding.

However, I find that the management dummies are not significant in any of the models I tried. This is why I then focused my analyses on regressions with the situation variables (C, D, E and F) instead of the management dummies. As I already defined, C proxies for a situation where the outside ownership is concentrated and the manager has a stake between 6 and 25%, D for a situation where the manager has a stake between 6 and 25% and does not face a main owner, E for a situation where both the manager and an outsider have a controlling stake, and F for a situation where the manager is the only main owner with a stake higher than 25%. To study the effect of management ownership vs. outsider ownership, I coupled them into C and E (both with concentrated outside ownership), and D and F (both with dispersed outside ownership). D and F are expected to proxy for PPA more than PAA, so I used them first.

I find that D is never significant, while F is sometimes weakly significant and positive (particularly in the US sample). Therefore, when I increase the management stake, but the outsiders remain dispersed, I find that it increases the LBO gains, which is consistent with my findings on MGTSTAKE. Nikoskelainen and Wright (2005) also found an interesting result on the subject: they find that the success of a LBO was related to the governance mechanisms set after the transaction, and that the main determinant of profit was management ownership. According to their findings, management ownership has a positive impact on the firm value until they reach a controlling stake. In contrast, they find that a controlling manager has a negative impact on value creation. In the light of these results, it seems logical that I find that a controlling manager (situation F) in the target leads to higher gains when the target is bought by a financier. An explanation for the problem caused by a high insider shareholding could be that it discourages potential buyers from acquiring the firm, decreasing its equity's liquidity. This would be a good incentive for a financier to take the firm private, or at least acquire a large stake. However, when I used the variables C and E, if C is insignificant, E is found highly significant and negative, for both the Full and US sample. Thus, when the management gets a controlling stake but faces another main owner, it becomes negative for the LBO gains. Four cases can be derived from such a situation:

- 1) The two controlling parties cooperate, expropriate the remaining minority, and are reluctant to any acquisition (typical case of PPA); this type of firm has low probability to be acquired, but a large potential of gains for the investor.
- 2) The two controlling parties cooperate, but do not expropriate minority, and are still reluctant to an acquisition; this type of firm still has a low probability to be acquired, but has a low potential for gains.

- 3) The two controlling parties disagree, but monitor each other and make the remaining minority a decisive pivot; this firm has a potential for acquisition but with low potential for gains.
- 4) Finally, the two controlling parties disagree, but fight against each other and destroy the value of the firm. This firm may be a potential target, and is a large potential of gains.

I haven't found any previous research focusing on the relationship between a main outside owner and a controlling manager; nonetheless, it is likely that the results on situation E are an observation of cases 2 and 3. Indeed, case 2 illustrates a successful cooperation between the owner-manager and the outside owner that would create a favorable equilibrium for the firm, which would explain that a financier coming to change this equilibrium would not get positive returns. After all, this successful cooperation is a characteristic of the LBO; Jensen (1989) particularly underlines the success of a "LBO Association" between partners. If the LBO investor aims to add value by creating this strong link between manager and owner, I imagine that his opportunities to add value would be reduced when this link already exists and works. A quick look at my sample showed that none of the 10 firms in situation E had PAA problems, which supports the idea that manager and owner could work together. On the other hand, these results could illustrate the case 3, where the controlling manager and outsider are not cooperating. In that case, I suppose that even if they have their own interest, they are not able to satisfy them without facing the forces of the other. This situation would be, in contrast with PAA or PPA situations, the only case where the opposing forces would have equivalent strengths, which also ends up in a reduction of any type of Agency conflicts. More analysis on the four cases can be done in future research (see Section 7).

I changed the management stake bounds to check whether my results could be better explained than with the findings of Morck, Shleifer and Vishny (1988). I tested several dummies, and regressed them on the CARs, and found that it may be interesting to set new bounds to 10 and 30%. I therefore changed my dummies (management and situation), and ran the set of regressions (full and reduced models) on the Full and US samples. I find that it does not change the general pattern of my variables: the signs and significance are roughly the same, but the adjusted coefficients of determination are generally lower. I therefore focused on my previous research based on Morck, Shleifer and Vishny (1988)'s work. I also tried to set a new dummy, MGTOVER25, equal to 0 if the management stake is under 25%, and to the value of the stake when it is 25% and more. I finally checked the relationship between ROA and management stake. However, these two attempts did not bring any significant results.

The regressions also show an interesting result concerning the type of transaction: MBOs and Take private transactions do not seem to have a particular effect on the gains, but the secondary buyouts (SBO) seem to have a little positive impact (significant in regression Full1). The difference between SBO and FIN is as follows: a transaction was classified as a SBO only if the second financier directly bought the firm from the first financier, who consequently had a high stake (more than 85%). There are few of them, because generally, firms which have already gone under a first LBO are not public anymore; however some cases where it stayed public were found and kept in the sample. In contrast, a transaction in which the firm had at least a financier as main owner but not classified as a SBO is a transaction in which the second financier has made a public or tender offer for the acquisition, and a first financier owns a controlling stake generally around 25%. There are

more cases like that in my sample. An unsuccessful or a successful but incomplete first restructuring could be the reason why the firm went under a second LBO and explain the positive sign for SBOs.

Among the owner identity variables, only STATE, FIN, and CORP present significant results. On both the Full (Full4 and Full5, although not significant) and US samples, CONC is positively related to the abnormal returns, implying that the presence of at least an owner increases the gains of the LBO. In Full4 and Full5, the State has a positive impact on the abnormal returns, increasing the effect of CONC. The interpretation of this result is twofold: it could mean that, according to my hypothesis, the State really diminishes the value of the firm because of its focus on social consequences rather than value maximization. On the other hand, based on the idea, previously mentioned, that only the gain of the target is observed in this study, it could also mean that the State is a better bargainer than other types of owners, and is able to obtain a greater fraction of the LBO gain.

In the US regressions, I find that both financiers and corporations have a negative and significant estimate (US4 and US5), which is roughly equal in absolute value to the positive estimate of CONC. This means that these two owners seem to neither reduce nor improve the target's value, since the total impact on the LBO gains is null. This is consistent for the financier, as they are expected to be the one type of owners that maximizes the most the firm's value. However, the fact that corporations do not add to LBO gains suggests that US corporations create less PPA conflicts than suggested in my hypotheses. The others, FAMFOUND, FOUNDER and BANK, are not significant. Finally, the size of the firm seems to have a negative impact on LBO gains in the US sample. This would imply that small to medium firms are a better target than large firms, in which a restructuring may be more difficult to manage.

## **Section 7: Conclusion**

In this paper, I study the impact of the ownership structure and governance characteristics of a LBO target on the firm value. I define two distinct sources of Agency conflicts, PAA conflicts, due to a divergence of interests between managers and shareholders, and PPA, due to a divergence of interests between major shareholders and minority shareholders. These two categories of Agency conflicts are both a source of gains for the LBO investor who would modify the ownership structure of the firm. I hypothesize that a firm with PPA conflicts, because of the higher costs and fewer defense mechanisms for minority shareholders against main owners than for shareholders against managers, will bring higher gains to the new investor.

An interesting contribution of this study is its international dimension, which allows us comparing different types of ownership structure patterns. Indeed, it is well known that the typical Berle and Means model of “Modern Corporation”, if true in Anglo-Saxon culture, is rarely found outside of North America and UK. For example, firms in Continental Europe typically have a very concentrated ownership, generally controlled by families, banks or the State. This area therefore gives a pool of ownership patterns that are likely to illustrate PPA conflicts rather than PAA conflicts.

My final sample is composed of 63 firms that were taken over by a financier (either by the acquisition of the entire equity or of a controlling stake) between 1998 and 2004 in France, Germany and the US. Because the French and German public markets are much less developed than in the US, making publicly traded firms rarer and less informationally transparent; my sample is dominated by US firms. Nonetheless, I obtain interesting results when I compare the US and the European samples.

I first ran an event study to measure the CARs and CAARs of my samples. I find that in Continental Europe, most of the gain of the transaction is accumulated in the run-up period, while it is concentrated in the event period for the US, implying that European investors tend to benefit from their private information before the public announcement. I also find that the total abnormal returns are much higher in the US than in Continental Europe, thus contradicting my hypothesis that higher gains should be obtained in Europe because of the PPA conflict dominance, but supporting the findings of previous research focusing on Continental Europe and UK markets distinction. This could be a sign that PAA problems are underestimated compared to PPA conflicts. I finally find that post-event returns in the USA are significantly negative, which is to my knowledge a new result that should be further explored.

I then regressed several variables defining the ownership structure of the target before the transaction on the CARs of the target's stock price. My results support that PAA conflicts are a source of gains for LBOs. I also find a significant relation between the management's ownership before the transaction and the LBO gains: the gains increase with the management's stake, but only when the rest of the ownership is dispersed. When the controlling shareholder faces another outside main owner, the gains of the LBO investor are significantly reduced. This implies that Agency conflicts are quasi eliminated when two controlling parties are either cooperating or competing, since they do not have conflict interests in the first case and are strong enough to monitor each other in the second case. In both cases, the value of the firm is less likely to be reduced by Agency costs, creating less profit for the financier.

I also find that a first financier as a main owner does not bring higher gains to the second financier, and that the State as a main owner increases LBO gains, thus confirming the

hypothesis that the identity of the main owner influences its behavior with the firm. However, I find that a corporation as a main owner in the US has an insignificant impact on the gains, implying that US firms tend to follow a strategy allowing better value maximization of their owned firms than expected. My results also show a positive relation between the fact that the transaction was a secondary LBO and the gains, casting a light on the value creation debate that currently takes place due to the rise of this type of transactions. Finally, I find that an improvement of the target's ROA in the last five years has a negative impact on the gains, implying that less room for improvements is left for the new shareholders.

The findings of my paper lead to several questions for future research. First, as I mentioned in Section 5, I have only studied in this paper the target's gain after the announcement of a LBO. The abnormal return of the target only represents a part of the total gain, and ignores the bidder's gain. Therefore, the effect of bargaining power of each of the parties could influence the results: for example, even if the total gain of the LBO is higher in Europe, European targets may have lower bargaining power, thus giving the impression that European LBO returns are lower when most of the gain is caught by the bidder. It would be interesting to measure the total gain, by looking at the IRR of bidders when they exit the investment for example, since it would reflect the total market price after the restructuring (therefore the global added value of the LBO). Another way would be to measure the AR on the stock price of the bidder, but this implies that both the bidder and the target must be public, and will restrict even more the available data.

Another field of research would be the consequences of the interactions between major owners. Indeed, in my research, I have focused on three types of shareholders, either inside owners, outside owners or outside minority, and only opened up a discussion about the



effect of their possible interactions on firm value. More research needs to be done on the situation E, where the manager-owner and outside owner agree or disagree and improve or destroy value, since the four cases I listed and their consequences are only hypotheses. Moreover, I haven't considered the possibility of multiple outside owners: maybe the impact of two corporations holding each 40% is different from the impact of one corporation holding 80%. In the first case, the remaining 20%, either dispersed minority or management, may be critical if the two corporations do not agree. The power of the minority is very different in this case than when facing one strong block. It would be interesting to expand the sample with more firms (even firms that were not taken over) and use a richer model with more ownership and performance measures in order to better study these interactions.

## Tables

Figure 1: US P2P activity, (1979-2002), from Renneboog and Simons (2005) (p37)

Figure 1: US public-to-private activity

This figure shows the number of public-to-private transactions (left hand scale) and the value in million USD (right hand scale). Source: Centre for Management Buyout Research / Barclays Private Equity/ Deloitte & Touche.

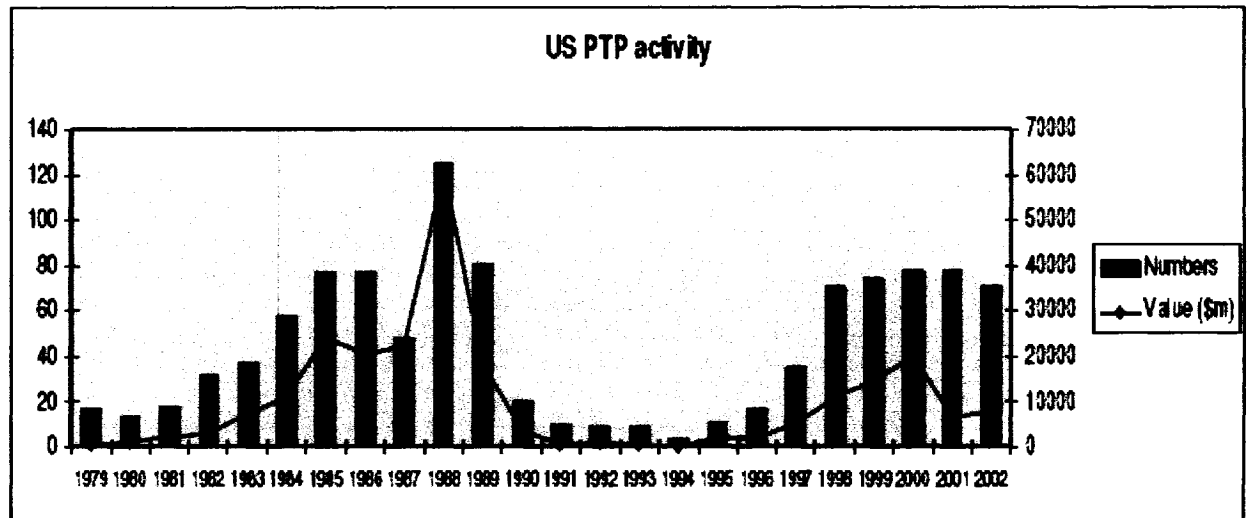
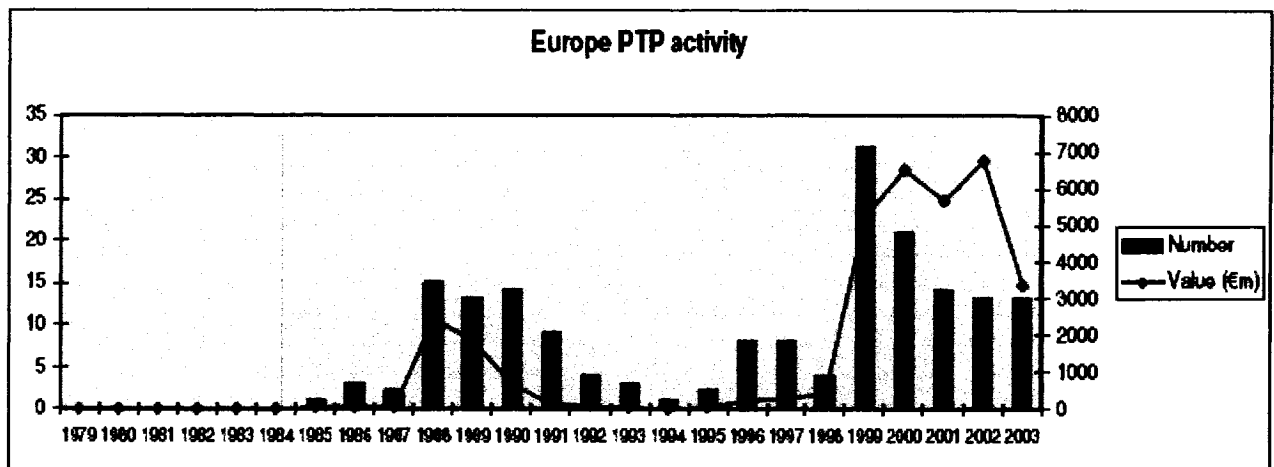


Figure 2: Continental Europe P2P activity (1979-2003), from Renneboog and Simons (2005) (p 39)

Figure 3: Continental European public-to-private activity

This figure shows the number of public-to-private transactions (left hand scale) and the value in million Euro (right hand scale). Source: Centre for Management Buyout Research / Barclays Private Equity/ Deloitte & Touche.



**Table 1: US, France and Germany portraits, based on Gedajlovic and Shapiro (1998) (Table 1, p 537)**

|                                     | US   | France  | Germany  |
|-------------------------------------|--|---|--|
| <b>Ownership description</b>        | Relatively passive (distant) shareholders, Boards of directors not always dependant of management, active market for corporate control | Coalitions of active shareholders (often companies or banks), BODs that are more independent of management and limited markets for corporate control; BOD therefore reflect the institutions        | Coalitions of active shareholders (often companies or banks), BODs that are more independent of management and limited markets for corporate control; BOD therefore reflect the institutions |
| <b>Ownership dispersion</b>         | Very high  | Medium  | Low  |
| <b>Ownership identity</b>           | Individuals, pension, mutual, funds (largest = institutions)   | Non financial and State (still considerable state ownership); corporate; dominant are individual or families  | Non financial and banks (important role); corporate; dominant are individual or families   |
| <b>BOD</b>                          | Managers, outsiders  | Owners, workers   | Owners, workers  |
| <b>Shareholder powers</b>           | Low  | High  | High   |
| <b>Sources of financing</b>         | Equity   | Debt, equity  | Debt   |
| <b>Internal constraint</b>          | Weak   | Strong  | Strong   |
| <b>External constraint</b>          | Strong   | Weak  | Weak   |
| <b>Market for corporate control</b> | High   | Low (Power of French government: mergers which involve foreign entities taking over a domestic concern may be subject to special reviews, and this limits the French market for corporate control.) |  |

**Table 2: Construction of the sample**

| <b>Sample - France, Germany, USA (1998-2004)</b><br><b>MergerMarket database</b>              |           |
|---|-----------|
| Full Sample from MergerMarket (all M&A transactions)  | 15421     |
| Transactions corresponding to my criteria<br>(buyout transaction, financier acquires control) | 1113      |
| Transactions with available data  | 165       |
| Public  | 81        |
| Private   | 84        |
| <i>First LBO</i>  | <i>63</i> |
| <i>Second LBO</i>   | <i>21</i> |
| Public firms with enough active days on stock market  | 66        |
| Public firms with ROA data  | 63        |

**Table 3: Definition of the Situation Variables**

| Management stake             | 0-5%         |           | 6-25%        |           | >25%                |           |
|------------------------------|--------------|-----------|--------------|-----------|---------------------|-----------|
|                              | Concentrated | Dispersed | Concentrated | Dispersed | Concentrated        | Dispersed |
| Ownership Situation          | A            | B         | C            | D         | E                   | F         |
| Manager / Owner relationship | PPA          | PAA       | ?            | PPA       | "Mutual Monitoring" | PPA       |
| MGT6TO25                     | 0            | 0         | 1            | 1         | 0                   | 0         |
| MGTMORE25                    | 0            | 0         | 0            | 0         | 1                   | 1         |
| CONC                         | 1            | 0         | 1            | 0         | 1                   | 0         |

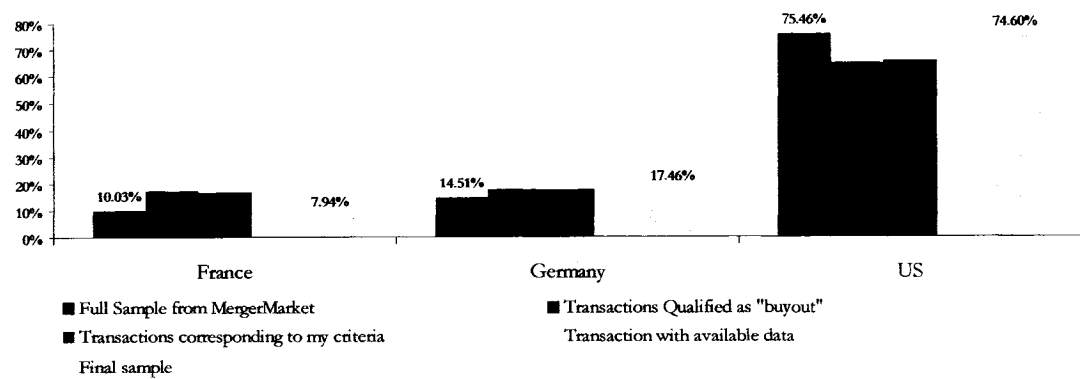
**Table 4: List of variables**

|                | Variable         | Definition   |
|----------------|------------------|--|
| <i>PAA</i>     | <b>MGTEFF</b>    | dummy variable equal to one if the management has been replaced after the transaction and 0 if it stays in place   |
|                | <b>MGTCOMP</b>   | dummy variable equal to 1 if the management compensation before the transaction was not related to stock performance, and 0 otherwise  |
|                | <b>TOBINQ</b>    | dummy variable equal to 1 if the firm's Q is less than one, and 0 otherwise.   |
|                | <b>CFEQ</b>      | dummy variable equal to one if the CF/Eq ratio is equal or more than 0.1, and 0 otherwise  |
|                | <b>AGENCY</b>    | dummy variable that combine the values of both the firm's Q and its CF/Eq value: it is equal to one if the firm's Q is less than one and the cash flow ratio is equal or more than 0.1 |
| <i>PPA</i>     | <b>CONC</b>      | dummy variable equal to 1 if the firm's structure is concentrated (one main owner with more than 20%) and 0 otherwise.   |
|                | <b>DISP</b>      | dummy variable equal to 1 if the firm's structure is dispersed 0 otherwise.  |
|                | <b>FAMILY</b>    | dummy variable equal to 1 if the the main owners is a family, and 0 otherwise.   |
|                | <b>FOUNDER</b>   | dummy variable equal to 1 if the the main owners is the founder, and 0 otherwise.  |
|                | <b>BANK</b>      | dummy variable equal to 1 if the the main owners is a bank, and 0 otherwise.   |
|                | <b>STATE</b>     | dummy variable equal to 1 if the the main owners is the State, and 0 otherwise.  |
|                | <b>CORP</b>      | dummy variable equal to 1 if the the main owners is a corporation, and 0 otherwise.  |
|                | <b>FIN</b>       | dummy variable equal to 1 if the the main owners is a financier and 0 otherwise.   |
|                | <b>MECHA</b>     | dummy variable equal to 1 if there is a control mechanism in the firm, and 0 otherwise   |
|                | <b>CHAIN</b>     | dummy variable equal to 1 when the control mechanism in presence is a chain of control, and 0 otherwise.   |
|                | <b>DUAL</b>      | dummy variable equal to 1 when the control mechanism in presence is dual-class shares, and 0 otherwise.  |
|                | <b>PYRAMID</b>   | dummy variable equal to 1 when the control mechanism in presence is a pyramid, and 0 otherwise.  |
|                | <b>CROSS</b>     | dummy variable equal to 1 when the control mechanism in presence is cross-shareholding, and 0 otherwise.   |
|                | <b>MGTSTAKE</b>  | management stake before ttransaction   |
|                | <b>MGT6TO25</b>  | dummy variable equal to 1 if the management stake before the transaction was 26 and more, and 0 otherwise  |
|                | <b>MGTMORE25</b> | dummy variable equal to 1 if the management stake is in the range 6 to 25% inclusively, and 0 otherwise  |
|                | <b>A</b>         | dummy variable equal to 1 if the situation is A, and 0 otherwise   |
|                | <b>B</b>         | dummy variable equal to 1 if the situation is B, and 0 otherwise   |
|                | <b>C</b>         | dummy variable equal to 1 if the situation is C, and 0 otherwise   |
|                | <b>D</b>         | dummy variable equal to 1 if the situation is D, and 0 otherwise   |
|                | <b>E</b>         | dummy variable equal to 1 if the situation is E, and 0 otherwise   |
|                | <b>F</b>         | dummy variable equal to 1 if the situation is F, and 0 otherwise   |
|                | <b>UNION</b>     | dummy variable equal to one if there was a sign of union resistance to the LBO announcement in the newspapers and 0 otherwise  |
|                | <b>MEANROA</b>   | mean ROA of the firm for the last 5 years (when available)   |
|                | <b>STDROA</b>    | 5 year standard deviation of ROA (when available)  |
|                | <b>ROACHANGE</b> | Change of ROA between the earliest and the most recent years available   |
| <i>Firm</i>    | <b>SBO</b>       | dummy variable equal to 1 if the transaction is a secondary buyout and 0 otherwise   |
|                | <b>MBO</b>       | dummy variable equal to 1 if the transaction is a management buyout (the management takes an active part in the transaction and a stake), and 0 otherwise                              |
|                | <b>TAKEPRIV</b>  | dummy variable equal to 1 if it is a going private transaction, and 0 otherwise  |
|                | <b>BETAUN</b>    | riskiness of the firm's asset: unleveraged beta  |
| <i>Control</i> | <b>LACK</b>      | dummy variable equal to 1 is not all 5 years are available, and to 0 if the full 5 years are available.  |
|                | <b>HERD</b>      | percentage of buyout transactions out of the total number of M&A transactions in the country on the previous year  |
|                | <b>MVEQ</b>      | market value of equity, calculated as the price paid for the target's equity divided by the percentage stake acquired  |
|                | <b>LOGMVEQ</b>   | ln(market value of equity)   |
|                | <b>FRANCE</b>    | dummy variable equal to 1 when the target is French, and 0 otherwise.  |
|                | <b>GERMANY</b>   | dummy variable equal to 1 when the target is German, and 0 otherwise.  |
|                | <b>QMR</b>       | difference between the local market return in Q in $t=-2$ and in Q in $t=-3$ , $t=0$ being the date of event   |
|                | <b>QRF</b>       | difference between the local risk free rate in Q in $t=-2$ and in Q in $t=-3$ , $t=0$ being the date of event  |
|                | <b>REGUL</b>     | a dummy variable equal to 1 if the target belongs to one of the following industries: Defense, Energy, Financial Services, Transportation and Utility                                  |
|                | <b>AGR</b>       | a dummy variable equal to 1 if the target is in the Agriculture and Mining industry, and 0 otherwise   |
|                | <b>CONSU</b>     | a dummy variable equal to 1 if the target is in the Consumer industry, and 0 otherwise   |
|                | <b>NRG</b>       | a dummy variable equal to 1 if the target is in the Energy industry, and 0 otherwise   |
|                | <b>FINSERV</b>   | a dummy variable equal to 1 if the target is in the Financial Services industry, and 0 otherwise   |
|                | <b>HIGHTECH</b>  | a dummy variable equal to 1 if the target is in the High Technology industry, and 0 otherwise  |
|                | <b>INDUS</b>     | a dummy variable equal to 1 if the target is in the Industrial industry, and 0 otherwise   |
|                | <b>LEIS</b>      | a dummy variable equal to 1 if the target is in the Leisure and Media industry, and 0 otherwise  |
|                | <b>MEDIC</b>     | a dummy variable equal to 1 if the target is in the Medical industry, and 0 otherwise  |
|                | <b>OTHERSER</b>  | a dummy variable equal to 1 if the target is in the Other Services industry, and 0 otherwise   |

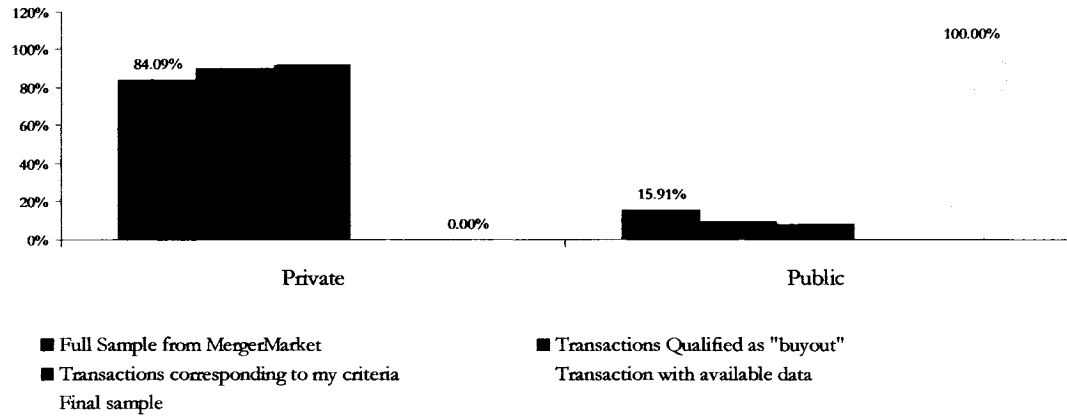
**Table 5: Descriptive Statistic – Universe vs. Sample (1998-2004)**

|  | Full Sample from<br>MergerMarket | Transactions<br>Qualified as<br>"buyout" | Transactions<br>corresponding to<br>my criteria | Transaction with<br>available data | Final sample<br>(public firms with<br>ROA data) |
|--|----------------------------------|--|---|------------------------------------|---|
| <b>Country</b>                             |                                  |  |   |                                    |   |
| France                                     | 1547                             | 333                                      | 186   | 62                                 | 5   |
| Germany                                    | 2237                             | 346                                      | 196   | 43                                 | 11  |
| US   | 11637                            | 1251                                     | 731   | 60                                 | 47  |
| <b>TOTAL</b>                               | <b>15421</b>                     | <b>1930</b>                              | <b>1,113</b>                                    | <b>165</b>                         | <b>63</b>                                       |
| <b>Year</b>                                |                                  |  |   |                                    |   |
| 1998                                       | 327                              | 30                                       | 20  | 1                                  | 0   |
| 1999                                       | 479                              | 36                                       | 21  | 3                                  | 1   |
| 2000                                       | 1032                             | 93                                       | 49  | 11                                 | 4   |
| 2001                                       | 2834                             | 203                                      | 98  | 18                                 | 3   |
| 2002                                       | 2715                             | 290                                      | 160   | 22                                 | 11  |
| 2003                                       | 3248                             | 488                                      | 264   | 43                                 | 20  |
| 2004                                       | 4786                             | 790                                      | 501   | 67                                 | 24  |
| <b>TOTAL</b>                               | <b>15421</b>                     | <b>1930</b>                              | <b>1113</b>                                     | <b>165</b>                         | <b>63</b>                                       |
| <b>Public or Private Target</b>            |                                  |  |   |                                    |   |
| Private                                    | 12968                            | 1741                                     | 1023  | 84                                 | 0   |
| Public                                     | 2453                             | 189                                      | 90  | 81                                 | 63  |
| <b>TOTAL</b>                               | <b>15421</b>                     | <b>1930</b>                              | <b>1113</b>                                     | <b>165</b>                         | <b>63</b>                                       |
| <b>Deal size (EUR m)</b>                   |                                  |  |   |                                    |   |
| less than 10                               | 1238                             | 65                                       | 17  | 3                                  | 1   |
| 10-99                                      | 5781                             | 571                                      | 310   | 44                                 | 17  |
| 100-499                                    | 2693                             | 372                                      | 235   | 48                                 | 24  |
| 500-999                                    | 587                              | 106                                      | 56  | 16                                 | 6   |
| more than 1000                             | 711                              | 78                                       | 57  | 27                                 | 15  |
| na   | 4411                             | 738                                      | 438   | 27                                 | 0   |
| <b>TOTAL</b>                               | <b>15421</b>                     | <b>1930</b>                              | <b>1113</b>                                     | <b>165</b>                         | <b>63</b>                                       |
| <b>Target Industry</b>                     |                                  |  |   |                                    |   |
| Agriculture and Mining                     | 134                              | 12                                       | 7   | 1                                  | 1   |
| Construction                               | 491                              | 59                                       | 46  | 8                                  | 0   |
| Consumer                                   | 1744                             | 334                                      | 211   | 34                                 | 10  |
| Defence                                    | 60                               | 4  | 1   | 0                                  | 0   |
| Energy                                     | 779                              | 61                                       | 15  | 2                                  | 2   |
| Financial services                         | 2261                             | 127                                      | 47  | 10                                 | 4   |
| High Technology                            | 2086                             | 132                                      | 67  | 11                                 | 8   |
| Industry                                   | 3364                             | 626                                      | 410   | 57                                 | 18  |
| Leisure and Media                          | 1276                             | 169                                      | 77  | 16                                 | 10  |
| Medical                                    | 1145                             | 129                                      | 83  | 10                                 | 3   |
| Other Services                             | 852                              | 127                                      | 81  | 8                                  | 4   |
| Telecommunications                         | 772                              | 86                                       | 38  | 5                                  | 3   |
| Transportation                             | 351                              | 58                                       | 28  | 3                                  | 0   |
| Utility                                    | 106                              | 6  | 2   | 0                                  | 0   |
| <b>TOTAL</b>                               | <b>15421</b>                     | <b>1930</b>                              | <b>1113</b>                                     | <b>165</b>                         | <b>63</b>                                       |
| Transactions from 01/01/1998 to 31/12/2004 |                                  |  |   |                                    |   |

**Graph 1: Country partition – Universe vs. Sample (1998-2004)**

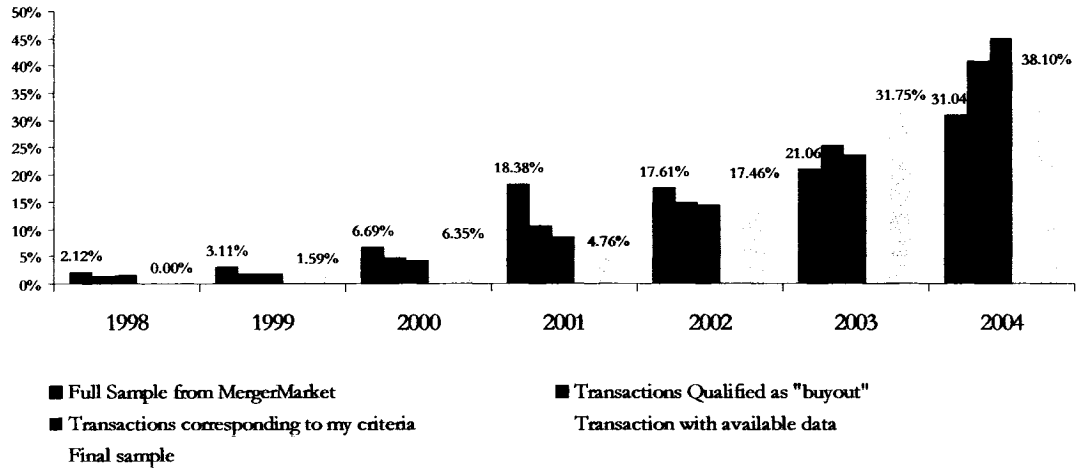


**Graph 2: Public / Private partition – Universe vs. Sample (1998-2004)**

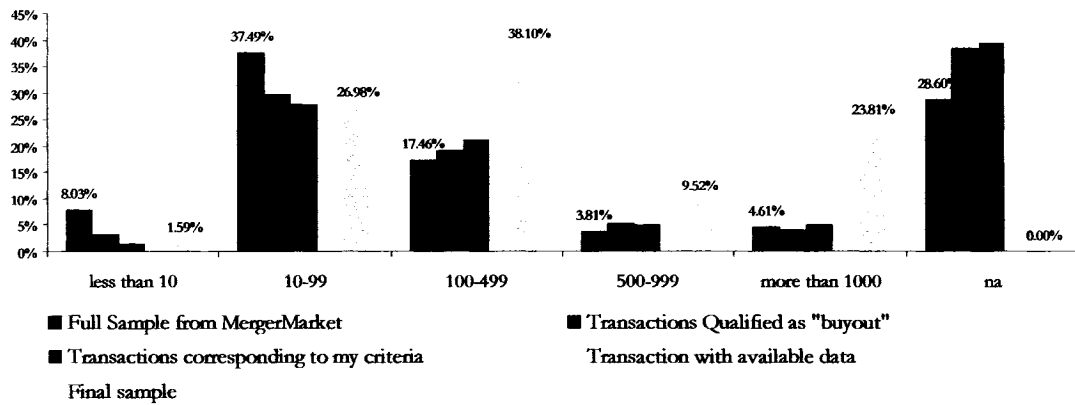




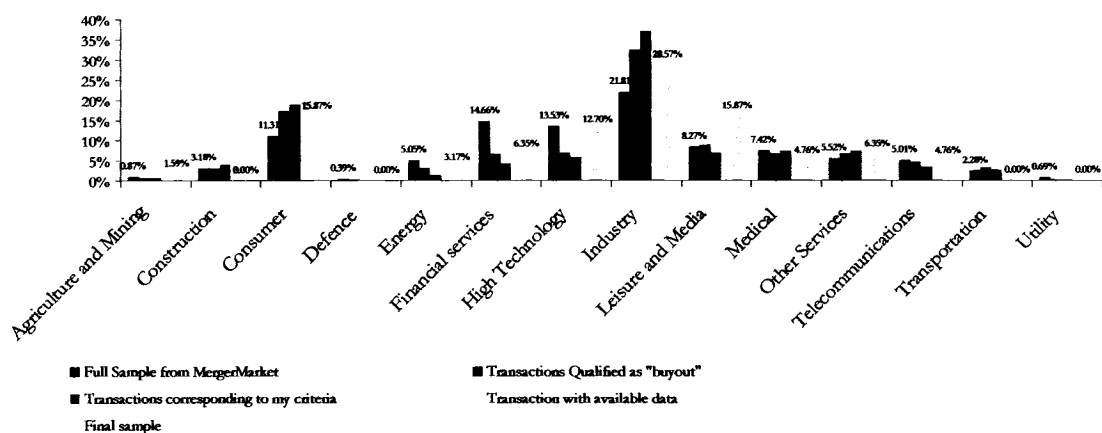
**Graph 3: Year partition – Universe vs. Sample (1998-2004)**



**Graph 4: Deal size partition – Universe vs. Sample (1998-2004)**



**Graph 5: Industry partition – Universe vs. Sample (1998-2004)**



**Table 6: Ownership information – Final Sample, (63 firms, 1998-2004)**

|                                   | France   | Germany   | USA       |
|-----------------------------------|----------|-----------|-----------|
| <b>Transaction type</b>           |          |           |           |
| 2dary BO                          | 0        | 0         | 0         |
| Financier Acq Control             | 0        | 5         | 11        |
| Financier Takes Private           | 5        | 5         | 25        |
| Financier takes private, 2dary BO | 0        | 0         | 1         |
| Financier takes private, MBO      | 0        | 0         | 10        |
| MBO                               | 0        | 1         | 0         |
| <b>TOTAL</b>                      | <b>5</b> | <b>11</b> | <b>47</b> |
| <b>Ownership structure</b>        |          |           |           |
| <b>Concentrated (one owner)</b>   | <b>3</b> | <b>7</b>  | <b>17</b> |
| Financier                         | 0        | 0         | 6         |
| Corporation                       | 2        | 3         | 5         |
| Family                            | 0        | 2         | 0         |
| Founder                           | 1        | 1         | 5         |
| Bank                              | 0        | 1         | 0         |
| State                             | 0        | 0         | 1         |
| <b>Concentrated (2 owners)</b>    | <b>2</b> | <b>3</b>  | <b>1</b>  |
| 2 Financiers                      | 0        | 1         | 0         |
| Financier Family                  | 1        | 0         | 0         |
| Financier Bank                    | 0        | 1         | 0         |
| 2 Families                        | 0        | 1         | 0         |
| 2 Corporations                    | 1        | 0         | 1         |
| <b>Total concentrated</b>         | <b>5</b> | <b>10</b> | <b>18</b> |
| <b>Dispersed</b>                  | <b>0</b> | <b>1</b>  | <b>29</b> |
| <b>TOTAL</b>                      | <b>5</b> | <b>11</b> | <b>47</b> |
| <b>Technique for control</b>      |          |           |           |
| <b>With technique*</b>            | <b>2</b> | <b>2</b>  | <b>10</b> |
| Dual class shares                 | 1        | 1         | 10        |
| Pyramid                           | 0        | 0         | 0         |
| Chain of control                  | 1        | 1         | 1         |
| cross holding                     | 0        | 0         | 0         |
| <b>No technique</b>               | <b>3</b> | <b>9</b>  | <b>37</b> |
| <b>TOTAL</b>                      | <b>5</b> | <b>11</b> | <b>47</b> |
| <b>PAA measures</b>               |          |           |           |
| Tobin Q < 1                       | 1        | 3         | 9         |
| CF / > 0.1                        | 3        | 8         | 29        |
| Both                              | 1        | 0         | 5         |

Table 6 (end)

|   | France   | Germany   | USA       |
|---|----------|-----------|-----------|
| Management  |          |           |           |
| <b>Stays after transaction</b>  | <b>3</b> | <b>11</b> | <b>33</b> |
| Had less than 6% ownership before transaction                         | 3        | 7         | 9         |
| Had less than 6 to 25% ownership before transaction, no other owner   | 0        | 0         | 10        |
| Had less than 6 to 25% ownership before transaction, Other main owner | 0        | 3         | 1         |
| Had more than 25% ownership before transaction                        | 0        | 1         | 13        |
| <b>Leaves after transaction</b>                                       | <b>2</b> | <b>0</b>  | <b>14</b> |
| Had less than 6% ownership before transaction                         | 1        | 0         | 3         |
| Had less than 6 to 25% ownership before transaction, no other owner   | 0        | 0         | 4         |
| Had less than 6 to 25% ownership before transaction, Other main owner | 0        | 0         | 2         |
| Had more than 25% ownership before transaction                        | 1        | 0         | 5         |
| <b>TOTAL</b>  | <b>5</b> | <b>11</b> | <b>47</b> |
| * One US firm had both dual shares and a chain structure              |          |           |           |

**Table 7: Ownership information – LBO Sample with available information (165 firms, 1998-2004)**

|                                   | France    |           | Germany   |           | USA       |          | TOTAL     |           |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|
|                                   | Public    | Private   | Public    | Private   | Public    | Private  | Public    | Private   |
| <b>Transaction type</b>           |           |           |           |           |           |          |           |           |
| 2dary BO                          | 0         | 5         | 0         | 4         | 2         | 4        | 2         | 13        |
| 2dary BO, MBO                     | 0         | 14        | 0         | 2         | 0         | 3        | 0         | 19        |
| Financier Acq Control             | 1         | 18        | 8         | 17        | 12        | 0        | 21        | 35        |
| Financier Takes Private           | 13        | 0         | 5         | 0         | 26        | 0        | 44        | 0         |
| Financier takes private, 2dary BO | 0         | 0         | 0         | 0         | 1         | 0        | 1         | 0         |
| Financier takes private, MBO      | 0         | 0         | 0         | 0         | 11        | 0        | 11        | 0         |
| MBO                               | 0         | 11        | 1         | 6         | 1         | 0        | 2         | 17        |
| <b>TOTAL</b>                      | <b>14</b> | <b>48</b> | <b>14</b> | <b>29</b> | <b>53</b> | <b>7</b> | <b>81</b> | <b>84</b> |
| <b>Ownership structure</b>        |           |           |           |           |           |          |           |           |
| <b>Concentrated (one owner)</b>   | <b>8</b>  | <b>43</b> | <b>10</b> | <b>22</b> | <b>18</b> | <b>7</b> | <b>36</b> | <b>72</b> |
| Financier                         | 0         | 17        | 0         | 4         | 7         | 7        | 7         | 28        |
| Corporation                       | 3         | 11        | 4         | 12        | 5         | 0        | 12        | 23        |
| Family                            | 2         | 5         | 4         | 1         | 0         | 0        | 6         | 6         |
| Founder                           | 3         | 7         | 1         | 1         | 5         | 0        | 9         | 8         |
| Bank                              | 0         | 1         | 1         | 1         | 0         | 0        | 1         | 2         |
| State                             | 0         | 2         | 0         | 3         | 1         | 0        | 1         | 5         |
| <b>Concentrated (2 owners)</b>    | <b>4</b>  | <b>4</b>  | <b>3</b>  | <b>4</b>  | <b>1</b>  | <b>0</b> | <b>8</b>  | <b>8</b>  |
| 2 Financiers                      | 2         | 1         | 1         | 1         | 0         | 0        | 3         | 2         |
| Financier Family                  | 1         | 1         | 0         | 0         | 0         | 0        | 1         | 1         |
| Financier Corporate               | 0         | 1         | 0         | 2         | 0         | 0        | 0         | 3         |
| Financier Bank                    | 0         | 0         | 1         | 0         | 0         | 0        | 1         | 0         |
| 2 Families                        | 0         | 0         | 1         | 0         | 0         | 0        | 1         | 0         |
| 2 Corporate                       | 1         | 1         | 0         | 1         | 1         | 0        | 2         | 2         |
| <b>Concentrated (3 owners)</b>    | <b>0</b>  | <b>1</b>  | <b>0</b>  | <b>2</b>  | <b>0</b>  | <b>0</b> | <b>0</b>  | <b>3</b>  |
| 3 Financiers                      | 0         | 1         | 0         | 0         | 0         | 0        | 0         | 1         |
| 3 Corporate                       | 0         | 0         | 0         | 1         | 0         | 0        | 0         | 1         |
| 1 Financier, 2 banks              | 0         | 0         | 0         | 1         | 0         | 0        | 0         | 1         |
| <b>Total concentrated</b>         | <b>12</b> | <b>48</b> | <b>13</b> | <b>28</b> | <b>19</b> | <b>7</b> | <b>44</b> | <b>83</b> |
| <b>Dispersed</b>                  | <b>2</b>  | <b>0</b>  | <b>1</b>  | <b>1</b>  | <b>34</b> | <b>0</b> | <b>37</b> | <b>1</b>  |
| <b>TOTAL</b>                      | <b>14</b> | <b>48</b> | <b>14</b> | <b>29</b> | <b>53</b> | <b>7</b> | <b>81</b> | <b>84</b> |
| <b>Technique for control</b>      |           |           |           |           |           |          |           |           |
| <b>With technique*</b>            | <b>6</b>  | <b>14</b> | <b>4</b>  | <b>6</b>  | <b>11</b> | <b>3</b> | <b>21</b> | <b>23</b> |
| Dual class shares                 | 3         | 0         | 2         | 1         | 11        | 3        | 16        | 4         |
| Pyramid                           | 1         | 9         | 0         | 1         | 0         | 0        | 1         | 10        |
| Chain of control                  | 2         | 13        | 2         | 5         | 1         | 0        | 5         | 18        |
| cross holding                     | 0         | 0         | 0         | 0         | 0         | 0        | 0         | 0         |
| <b>No technique</b>               | <b>8</b>  | <b>34</b> | <b>10</b> | <b>23</b> | <b>42</b> | <b>4</b> | <b>60</b> | <b>61</b> |
| <b>TOTAL</b>                      | <b>14</b> | <b>48</b> | <b>14</b> | <b>29</b> | <b>53</b> | <b>7</b> | <b>81</b> | <b>84</b> |
| <b>PAA measures</b>               |           |           |           |           |           |          |           |           |
| Tobin Q < 1                       | 3         | 1         | 3         | 0         | 11        | 2        | 17        | 3         |
| CF / > 0.1                        | 7         | 16        | 11        | 13        | 32        | 3        | 50        | 32        |
| Both                              | 2         | 0         | 0         | 0         | 6         | 0        | 8         | 0         |
| na                                | 0         | 16        | 0         | 8         | 0         | 1        | 0         | 25        |

**Table 7 (end)**

|   | France |         | Germany |         | USA    |         | TOTAL  |         |
|---|--------|---------|---------|---------|--------|---------|--------|---------|
|   | Public | Private | Public  | Private | Public | Private | Public | Private |
| Management  |        |         |         |         |        |         |        |         |
| <b>Stays after transaction</b>  | 11     | 44      | 13      | 26      | 38     | 6       | 62     | 76      |
| Had less than 6% ownership before transaction                         | 5      | 21      | 9       | 26      | 11     | 3       | 25     | 50      |
| Had less than 6 to 25% ownership before transaction, no other owner   | 1      | 0       | 0       | 0       | 12     | 0       | 13     | 0       |
| Had less than 6 to 25% ownership before transaction, Other main owner | 3      | 13      | 3       | 0       | 1      | 2       | 7      | 15      |
| Had more than 25% ownership before transaction                        | 2      | 10      | 1       | 0       | 14     | 1       | 17     | 11      |
| <b>Leaves after transaction</b>                                       | 3      | 4       | 1       | 3       | 15     | 1       | 19     | 8       |
| Had less than 6% ownership before transaction                         | 2      | 3       | 1       | 1       | 4      | 0       | 7      | 4       |
| Had less than 6 to 25% ownership before transaction, no other owner   | 0      | 0       | 0       | 0       | 4      | 0       | 4      | 0       |
| Had less than 6 to 25% ownership before transaction, Other main owner | 0      | 1       | 0       | 1       | 2      | 1       | 2      | 3       |
| Had more than 25% ownership before transaction                        | 1      | 0       | 0       | 1       | 5      | 0       | 6      | 1       |
| <b>TOTAL</b>  | 14     | 48      | 14      | 29      | 53     | 7       | 81     | 84      |
| * Some firms had several techniques                                   |        |         |         |         |        |         |        |         |

Table 8: Event study windows

|               | Estimation                   | Runup     | Event   | Post Event               |
|---------------|------------------------------|-----------|---------|--------------------------|
| Daily         | [(max available, -276), -26] | [-25, -2] | [-1, 2] | [3, (min delisting, 30)] |
| Weekly        | [(max available, -150), -10] | [-9, -1]  | [0, 1]  | [2, (min delisting, 12)] |
| Second Weekly | [-55, -6]                    | [-5, -1]  | [0, 1]  | [2, (min delisting, 12)] |
| Monthly       | [(max available, -50), -3]   | [-2, -1]  | [0, 1]  | [2, 3]                   |

**Table 9: Event Study CAARs on Daily, Weekly, Second Weekly and Monthly samples – France, Germany, USA (1998-2004)**

| <b>CAAR for each Country (Daily)</b>  |             |                         |                   |  |       |
|---------------------------------------|-------------|-------------------------|-------------------|--|-------|
| (estimation period: -275, -26)        |             | t-stats are in brackets |                   |  |       |
|                                       | Nb of firms | Runup<br>(-25, -2)      | Event<br>(-1, 2)  | Post event<br>[3, (min delisting, 30)] |       |
| France                                | 5           | 3.10%<br>(0.811)        | 2.61%<br>(1.549)  | -1.57%<br>(-0.459)                     |       |
| Germany                               | 13          | 6.81%<br>(1.068)        | 2.60%<br>(3.015)  | -1.23%<br>(-0.436)                     | ***   |
| USA                                   | 48          | 1.76%<br>(1.042)        | 21.50%<br>(16.87) | -8.45%<br>(-1.939)                     | *** * |
| <b>CAAR for each Country (Weekly)</b> |             |                         |                   |  |       |
| (estimation period: -150, -10)        |             | t-stats are in brackets |                   |  |       |
|                                       | Nb of firms | Runup<br>(-9, -1)       | Event<br>(0, 1)   | Post event<br>[2, (min delisting, 12)] |       |
| France                                | 6           | 3.93%<br>(0.782)        | 0.91%<br>(0.488)  | 3.14%<br>(0.438)                       |       |
| Germany                               | 14          | 13.67%<br>(2.168)       | 0.45%<br>(0.639)  | 4.78%<br>(0.864)                       | **    |
| USA                                   | 42          | 3.94%<br>(1.130)        | 21.45%<br>(10.34) | -16.29%<br>(-3.686)                    | ***   |
| t-stats are between brackets          |             |                         |                   |  |       |
| *** significant at 1%                 |             | ** significant at 5%    |                   | * significant at 10%                   |       |



Table 9 (end)

**CAAR for each Country (Second Weekly)**

(estimation period: -50, -6)

|         | Nb of firms | Runup<br>(-5, -1) | Event<br>(0, 1)         | Post event<br>[2, (min delisting, 12)] |     |
|---------|-------------|-------------------|-------------------------|--|-----|
| France  | 6           | 4.72%<br>(1.153)  | 1.10%<br>(0.555)        | 1.55%<br>(0.100)                       |     |
| Germany | 14          | 10.08%<br>(1.996) | **<br>-0.76%<br>(0.860) | 2.32%<br>(0.168)                       |     |
| USA     | 42          | 1.93%<br>(1.135)  | 21.14%<br>(9.983)       | ***<br>-20.01%<br>(-3.470)             | *** |

**CAAR for each Country (Monthly)**

(estimation period: -49, -3)

|         | Nb of firms | Runup<br>(-2, -1)  | Event<br>(0, 1)   | Post event<br>(2, 3) |    |
|---------|-------------|--------------------|-------------------|----------------------|----|
| France  | 12          | 1.47%<br>(0.455)   | 3.80%<br>(0.908)  | -0.88%<br>(-0.278)   |    |
| Germany | 14          | 6.25%<br>(1.281)   | 3.97%<br>(1.061)  | 7.62%<br>(1.977)     | ** |
| USA     | 51          | -0.41%<br>(-0.074) | -0.11%<br>(0.382) | -3.19%<br>(-0.751)   |    |

t-stats are between brackets

\*\*\* significant at 1%

\*\* significant at 5%

\* significant at 10%

**Table 10: Event Study CAARs on Daily, Weekly, Second Weekly and Monthly samples – Europe, USA (1998-2004)**

| <b>CAAR Europe vs. USA (Daily)</b>  |             |                    |                   |     |  |     |
|---|-------------|--------------------|-------------------|-----|--|-----|
| (estimation period: -275, -26)  |             |                    |                   |     |  |     |
|   | Nb of firms | Runup<br>(-25, -2) | Event<br>(-1, 2)  |     | Post event<br>[3, (min delisting, 30)] |     |
| Europe  | 18          | 5.78%<br>(1.335)   | 2.60%<br>(3.378)  | *** | -1.33%<br>(-0.613)                     |     |
| USA   | 48          | 1.76%<br>(1.042)   | 21.50%<br>(16.87) | *** | -8.45%<br>(-1.939)                     | **  |
| <b>CAAR Europe vs. USA (Weekly)</b>                                       |             |                    |                   |     |  |     |
| (estimation period: -150, -10)  |             |                    |                   |     |  |     |
|   | Nb of firms | Runup<br>(-9, -1)  | Event<br>(0, 1)   |     | Post event<br>[2, (min delisting, 12)] |     |
| Europe  | 20          | 10.75%<br>(2.243)  | 0.59%<br>(0.801)  | **  | 4.29%<br>(0.963)                       |     |
| USA   | 42          | 3.94%<br>(1.130)   | 21.45%<br>(10.34) | *** | -16.29%<br>(-3.686)                    | *** |
| t-stats are between brackets  |             |                    |                   |     |  |     |
| *** significant at 1%      ** significant at 5%      * significant at 10% |             |                    |                   |     |  |     |

**Table 10 (end): Event Study CAARs on Daily, Weekly, Second Weekly and Monthly samples – Europe, USA (1998-2004)**

**CAAR Europe vs. USA (Second Weekly)**

(estimation period: -50, -6)

|        | Nb of firms | Runup<br>(-5, -1) |     | Event<br>(0, 1)   |     | Post event<br>[2, (min delisting, 12)] |     |
|--------|-------------|-------------------|-----|-------------------|-----|--|-----|
| Europe | 20          | 8.47%<br>(3.885)  | *** | -0.20%<br>(0.307) |     | 2.09%<br>(-0.021)                      |     |
| USA    | 42          | 1.93%<br>(1.135)  |     | 21.14%<br>(9.983) | *** | -20.01%<br>(-3.470)                    | *** |

**CAAR Europe vs. USA (Monthly)**

(estimation period: -49, -3)

|        | Nb of firms | Runup<br>(-2, -1)  |  | Event<br>(0, 1)   |  | Post event<br>(2, 3) |  |
|--------|-------------|--------------------|--|-------------------|--|----------------------|--|
| Europe | 26          | 4.04%<br>(1.249)   |  | 3.89%<br>(1.395)  |  | 3.70%<br>(1.261)     |  |
| USA    | 51          | -0.41%<br>(-0.074) |  | -0.11%<br>(0.382) |  | -3.19%<br>(-0.751)   |  |

t-stats are between brackets

\*\*\* significant at 1%

\*\* significant at 5%

\* significant at 10%

**Table 11: CAARs for LBO of Europe and USA– Run-up and event in the same window (1998-2004)**

| <b>Mean CAAR for each Country (Daily)</b>       |             |                         |                       |     |   |
|---|-------------|-------------------------|-----------------------|-----|---|
| <b>(estimation period: -275, -26)</b>           |             |                         |                       |     |   |
|   | Nb of firms | runup+event<br>(-25, 2) | post event<br>(3, 30) |     |   |
| France  | 5           | 5.71%<br>(1.305)        | -1.57%<br>(-0.460)    |     |   |
| Germany   | 13          | 17.50%<br>(2.970)       | -1.93%<br>(-0.549)    | *** |   |
| USA   | 48          | 23.23%<br>(6.798)       | -8.52%<br>(-1.915)    | *** | * |
| <b>Mean CAAR for Europe vs. USA (Daily)</b>     |             |                         |                       |     |   |
| <b>(estimation period: -275, -26)</b>           |             |                         |                       |     |   |
|   | Nb of firms | runup+event<br>(-25, 2) | post event<br>(3, 30) |     |   |
| Europe  | 18          | 14.22%<br>(3.212)       | -1.83%<br>(-0.709)    | *** |   |
| USA   | 48          | 23.23%<br>(6.798)       | -8.52%<br>(-1.915)    | *** | * |
| t-stats are between brackets                    |             |                         |                       |     |   |
| *** significant at 1%      ** significant at 5% |             |                         |                       |     |   |
| * significant at 10%                            |             |                         |                       |     |   |

**Table 12: Previous results on US and European LBO studies**

| Study                             | Sample period | Particular sample                | Window          | N   | CAAR   | t-stat | z-stat |
|-----------------------------------|---------------|----------------------------------|-----------------|-----|--------|--------|--------|
| US studies                        |               |                                  |                 |     |        |        |        |
| Lehn and Poulsen (1989)           | 1980-87       |                                  | -1, 1 days      | 244 | 16.30% | \      | \      |
|                                   |               |                                  | -10, 10 days    | 244 | 19.90% | \      | \      |
|                                   |               |                                  | -20, 20 days    | 244 | 20.50% | \      | \      |
| Marais, Schipper Smith (1989)     | 1974-1985     | Common stock                     | -1, 0 days      | 80  | 13.00% | \      | 42.33  |
|                                   |               |                                  | 1 to completion | 33  | 9.00%  | \      | 1.64   |
|                                   |               | Non convertible preferred stock  | -1, 0 days      | 10  | 11.00% | \      | 9.12   |
|                                   |               |                                  | 1 to completion | 6   | -4.00% | \      | -0.25  |
| Slovin, Sushka and Bendeck (1991) | 1980-88       | Full Sample                      | -1, 0 days      | 128 | 17.35% | 65.39  | \      |
|                                   |               |                                  | +1, +15 days    | 128 | 1.02%  | 1.40   | \      |
|                                   |               | Bids with Buyout specialists     | -1, 0 days      | 33  | 19.18% | 42.11  | \      |
|                                   |               |                                  | +1, +15 days    | 33  | -0.69% | -0.56  | \      |
| Lee and al. (1992)                | 1983-89       | Non independent dominated boards | -20, 0 days     | 58  | 14.57% | \      | 5.89   |
|                                   |               |                                  | -20, 20 days    | 58  | 15.99% | \      | 4.70   |
|                                   |               | Independent dominated boards     | -20, 0 days     | 58  | 24.30% | \      | 18.96  |
|                                   |               |                                  | -20, 20 days    | 58  | 26.06% | \      | 14.95  |
| Van de Gutch and Moore (1998)     | 1980-92       |                                  | -1, +1 days     | 162 | 15.60% | \      | 55.53  |
|                                   |               |                                  | -10, +10 days   | 162 | 20.20% | \      | 26.61  |
| Goh and al (2002)                 | 1980-96       |                                  | 0, 1 days       | 323 | 12.68% | 53.50  | \      |
|                                   |               |                                  | 3, 5 days       | 323 | -0.07% | -0.24  | \      |
| European studies                  |               |                                  |                 |     |        |        |        |
| Andres et al. (2005)              | 1996-2002     | UK                               | -1, +1 days     | 64  | 16.90% | 40.83  | \      |
|                                   |               |                                  | -30, +30 days   | 64  | 28.57% | 15.31  | \      |
|                                   |               | Continental Europe               | -1, +1 days     | 35  | 13.73% | 33.17  | \      |
|                                   |               |                                  | -30, +30 days   | 35  | 24.15% | 12.94  | \      |
| Renneboog and al. (2005)          | 1997-2003     | UK                               | -5, 5 days      | 177 | 25.53% | 11.57  | \      |
|                                   |               |                                  | -40, 40 days    | 177 | 29.28% | 10.44  | \      |

Table 13: Regressions on the Full Sample – France, Germany, USA (1998-2004)

| Regressions on the Full sample - Dependant Variable = Daily CARs (event window)                       |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression Full1<br>Full model<br>Mgt dummies | Regression Full2<br>Full model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full3<br>Reduced model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full4<br>Reduced model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression Full5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression Full6<br>Only Critical<br>Variables |
| Number of observations  | 63  | 63   | 63  | 63  | 63  | 63   |
| R Square  | 0.6245  | 0.5997   | 0.5716  | 0.5986  | 0.7017  | 0.1242   |
| Adj R Square  | <b>0.2491</b>                                 | <b>0.1994</b>  | <b>0.3011</b>   | <b>0.3451</b>   | <b>0.3835</b>   | <b>0.0796</b>                                  |
| Durbin-Watson stat  | 2.1932  | 1.7763   | 1.8257  | 1.9648  | 1.9860  | 1.7950   |
| Heteroskedasticity  | No  | No   | No  | No  | No  | No   |
| Plot of Residuals   | Normal  | Normal   | Normal  | Normal  | normal  | Normal   |
| Intercept   | 0.7769<br>(2.461)                             | **<br>0.5230<br>(1.724)  | *<br>0.4637<br>(1.776)  | 0.5149<br>(2.191)   | **<br>0.1644<br>(0.510)   | 0.1516<br>(3.670)                              |
| MGTEFF  | -0.0174<br>(-0.157)                           | -0.0063<br>(-0.056)  | -0.0043<br>(-0.044)   | -0.0277<br>(-0.291)   | 0.0137<br>(0.140)   | \<br>\   |
| TOBINQ  | -0.3018<br>(-1.972)                           | -0.2409<br>(-1.507)  | -0.1949<br>(-1.378)   | -0.1112<br>(-0.764)   | -0.1332<br>(-0.910)   | \<br>\   |
| CFEQ  | -0.1387<br>(-1.196)                           | -0.1704<br>(-1.507)  | -0.1203<br>(-1.207)   | -0.0588<br>(-0.598)   | -0.0253<br>(-0.230)   | \<br>\   |
| AGENCY  | 0.3798<br>(1.759)                             | *<br>0.4179<br>(1.923)   | *<br>0.3542<br>(1.879)  | 0.1894<br>(0.987)   | 0.1439<br>(0.710)   | 0.0733<br>(0.60)                               |
| CONC  | -0.5637<br>(-1.561)                           | -0.0256<br>(-0.067)  | -0.0323<br>(-0.098)   | 0.0678<br>(0.224)   | 0.2423<br>(0.750)   | \<br>\   |
| *** significant at 1%    ** significant at 5%    * significant at 10%<br>t-stats are between brackets |   |  |   |   |   |  |

Table 13 (continued)

| Regressions on the Full sample - Dependant Variable = Daily CARs (event window)                       |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression Full1<br>Full model<br>Mgt dummies | Regression Full2<br>Full model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full3<br>Reduced model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full4<br>Reduced model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression Full5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression Full6<br>Only Critical<br>Variables |
| FAMFOUND  | 0.3634<br>(1.015)                             | 0.0608<br>(0.173)  | 0.0995<br>(0.355)   | 0.1750<br>(0.649)   | 0.0498<br>(0.160)   | /  |
| BANK  | 0.1560<br>(0.452)                             | -0.1618<br>(-0.439)  | -0.1468<br>(-0.457)   | -0.1735<br>(-0.559)   | -0.2246<br>(-0.700)   | /  |
| STATE   | 0.7547<br>(1.620)                             | 0.3459<br>(0.787)  | 0.4242<br>(1.162)   | 0.6603<br>(1.842)   | 0.6236<br>(1.600)   | /  |
| CORP  | 0.4214<br>(1.097)                             | -0.1036<br>(-0.263)  | -0.0711<br>(-0.214)   | -0.0754<br>(-0.235)   | -0.1693<br>(-0.470)   | /  |
| FIN   | 0.2042<br>(0.674)                             | -0.0626<br>(-0.204)  | -0.0477<br>(-0.188)   | -0.0843<br>(-0.321)   | -0.1154<br>(-0.410)   | /  |
| MECHA   | 0.1538<br>(0.588)                             | 0.0897<br>(0.331)  | -0.0318<br>(-0.339)   | -0.0329<br>(-0.360)   | -0.0791<br>(-0.830)   | /  |
| CHAIN   | -0.3382<br>(-1.289)                           | -0.1923<br>(-0.764)  | /   | /   | /   | /  |
| DUAL  | -0.2096<br>(-0.752)                           | -0.1046<br>(-0.360)  | /   | /   | /   | /  |
| MGTSTAKE  | 0.6501<br>(1.353)                             | -0.1337<br>(-0.455)  | -0.0866<br>(-0.359)   | 0.4718<br>(2.439)   | 0.6091<br>(2.790)   | /  |
| *** significant at 1%    ** significant at 5%    * significant at 10%<br>t-stats are between brackets |   |  |   |   |   |  |

Table 13 (continued)

| Regressions on the Full sample - Dependant Variable = Daily CARs (event window) |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression Full1<br>Full model<br>Mgt dummies | Regression Full2<br>Full model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full3<br>Reduced model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full4<br>Reduced model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression Full5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression Full6<br>Only Critical<br>Variables |
| MGT6TO25  | -0.2206<br>(-1.423)                           | \<br>\   | \<br>\  | \<br>\  | \<br>\  | \<br>\   |
| MGTMORE25   | -0.2756<br>(-0.984)                           | \<br>\   | \<br>\  | \<br>\  | \<br>\  | \<br>\   |
| C = Concentrated, Mgt 6-25%   | \<br>\  | \<br>\   | \<br>\  | -0.0405<br>(-0.239)   | -0.1261<br>(-0.740)   | \<br>\   |
| D = Dispersed, Mgt 6-25%  | \<br>\  | -0.0382<br>(-0.227)  | 0.0110<br>(0.080)   | \<br>\  | \<br>\  | \<br>\   |
| E = Concentrated, Mgt >25%  | \<br>\  | \<br>\   | \<br>\  | -0.4875<br>(-2.545)   | -0.5999<br>(-2.90)  | 0.0265<br>(0.270)                              |
| F = Dispersed, Mgt >25%   | \<br>\  | 0.3070<br>(1.429)  | 0.3133<br>(1.625)   | \<br>\  | \<br>\  | \<br>\   |
| MEANROA   | -0.3594<br>(-0.902)                           | -0.1130<br>(-0.302)  | -0.1035<br>(-0.647)   | -0.1688<br>(-0.988)   | -0.1632<br>(-0.790)   | \<br>\   |
| STDROA  | -0.2703<br>(-0.693)                           | 0.0243<br>(0.069)  | \<br>\  | \<br>\  | \<br>\  | \<br>\   |
| ROACHANGE   | -1.5703<br>(-2.207)                           | -1.5412<br>(-2.182)  | -1.6078<br>(-3.301)   | -1.6890<br>(-3.577)   | -1.5968<br>(-3.350)   | -1.0922<br>(-2.790)                            |
| *** significant at 1%    ** significant at 5%    * significant at 10%    ***    |   |  |   |   |   |  |
| t-stats are between brackets  |   |  |   |   |   |  |



Table 13 (continued)

| Regressions on the Full sample - Dependant Variable = Daily CARs (event window)                       |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression Full1<br>Full model<br>Mgt dummies | Regression Full2<br>Full model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full3<br>Reduced model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full4<br>Reduced model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression Full5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression Full6<br>Only Critical<br>Variables |
| SBO   | 0.6566<br>(2.472) **                          | 0.3641<br>(1.055)  | 0.4257<br>(1.474)   | 0.3783<br>(1.317)   | 0.3923<br>(1.390)   | /  |
| MBO   | -0.0208<br>(-0.196)                           | -0.0062<br>(-0.057)  | 0.0164<br>(0.173)   | 0.0277<br>(0.293)   | 0.0281<br>(0.250)   | /  |
| TAKEPRIV  | 0.0100<br>(0.085)                             | -0.0364<br>(-0.296)  | -0.0377<br>(-0.356)   | -0.0321<br>(-0.317)   | -0.0471<br>(-0.460)   | /  |
| BETAUN  | 0.0002<br>(0.234)                             | -0.0001<br>(-0.163)  | /   | /   | /   | /  |
| LACK  | -0.0732<br>(-0.743)                           | -0.1129<br>(-1.086)  | /   | /   | /   | /  |
| HERD  | -1.2661<br>(-0.883)                           | -1.0279<br>(-0.700)  | -1.2562<br>(-0.980)   | -1.6871<br>(-1.339)   | -1.4092<br>(-1.070)   | /  |
| LOGMVEQ   | -0.042279<br>(-1.104)                         | -0.009652<br>(-0.269)  | -0.012417<br>(-0.377)   | -0.030119<br>(-0.909)   | -0.01381<br>(-0.400)  | /  |
| FRANCE  | 0.0373<br>(0.133)                             | 0.0548<br>(0.191)  | 0.1098<br>(0.453)   | 0.1822<br>(0.772)   | 0.1395<br>(0.550)   | /  |
| GERMANY   | 0.0834<br>(0.568)                             | -0.0666<br>(-0.432)  | -0.0841<br>(-0.655)   | -0.1758<br>(-1.300)   | -0.1371<br>(-0.950)   | /  |
| *** significant at 1%    ** significant at 5%    * significant at 10%<br>t-stats are between brackets |   |  |   |   |   |  |

Table 13 (continued)

| Regressions on the Full sample - Dependant Variable = Daily CARs (event window)                       |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression Full1<br>Full model<br>Mgt dummies | Regression Full2<br>Full model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full3<br>Reduced model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full4<br>Reduced model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression Full5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression Full6<br>Only Critical<br>Variables |
| QMR   | -0.2080<br>(-0.825)                           | 0.0016<br>(0.006)  | /<br>/  | /<br>/  | /<br>/  | /<br>/   |
| QRF   | 0.1635<br>(0.130)                             | 0.5316<br>(0.414)  | /<br>/  | /<br>/  | /<br>/  | /<br>/   |
| REGUL   | -0.0195<br>(-0.126)                           | -0.0294<br>(-0.178)  | -0.0357<br>(-0.262)   | -0.0276<br>(-0.211)   | /<br>/  | /<br>/   |
| AGR   | /<br>/  | /<br>/   | /<br>/  | /<br>/  | -0.15889<br>(-0.470)  | /<br>/   |
| CONSU   | /<br>/  | /<br>/   | /<br>/  | /<br>/  | 0.18125<br>(0.920)  | /<br>/   |
| NRG   | /<br>/  | /<br>/   | /<br>/  | /<br>/  | 0.12304<br>(0.460)  | /<br>/   |
| FINSERV   | /<br>/  | /<br>/   | /<br>/  | /<br>/  | 0.20082<br>(0.890)  | /<br>/   |
| *** significant at 1%    ** significant at 5%    * significant at 10%<br>t-stats are between brackets |   |  |   |   |   |  |

Table 13 (end)

| Regressions on the Full sample - Dependant Variable = Daily CARs (event window) |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression Full1<br>Full model<br>Mgt dummies | Regression Full2<br>Full model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full3<br>Reduced model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression Full4<br>Reduced model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression Full5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression Full6<br>Only Critical<br>Variables |
| HIGHTECH  | /   | /  | /   | /   | 0.21349<br>(1.040)  | /  |
| INDUS   | /   | /  | /   | /   | 0.09199<br>(0.50)   | /  |
| LEIS  | /   | /  | /   | /   | 0.22284<br>(1.210)  | /  |
| MEDIC   | /   | /  | /   | /   | 0.30479<br>(1.180)  | /  |
| OTHERSER  | /   | /  | /   | /   | 0.48344<br>(2.080)  | /  |
| *** significant at 1%    ** significant at 5%    * significant at 10%           |   |  |   |   |   |  |
| t-stats are between brackets  |   |  |   |   |   |  |

**Table 14: Regressions on the US Sample (1998-2004)**

| Regressions on the US sample - Dependant Variable = Daily CARs (event window) |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression US1<br>Full Model<br>Mgt dummies | Regression US2<br>Full Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US3<br>Reduced Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US4<br>Reduced Model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression US5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression US6<br>Only Critical<br>Variables |
| Number of observations  | 47  | 47   | 47  | 47  | 47  | 47   |
| R Square  | 0.6141                                      | 0.6557   | 0.6434  | 0.6983  | 0.8382  | 0.2030                                       |
| Adj R Square  | 0.1547                                      | 0.2459   | 0.3690  | 0.4661  | 0.5865  | 0.1474                                       |
| Durbin-Watson stat  | 2.1787                                      | 2.1891   | 2.1110  | 2.2737  | 2.4670  | 1.8630                                       |
| Heteroskedasticity  | No  | No   | No  | No  | No  | No   |
| Plot of Residuals   | Normal                                      | Normal   | Normal  | Normal  | normal  | Normal                                       |
| Intercept   | 1.1218<br>(2.613)                           | 0.6179<br>(1.542)  | 0.7517<br>(2.307)   | 0.7970<br>(2.713)   | 1.7895<br>(3.730)   | 0.2270<br>(4.360)                            |
| MGTEFF  | 0.0311<br>(0.220)                           | 0.0152<br>(0.115)  | 0.0182<br>(0.165)   | -0.0468<br>(-0.443)   | 0.0151<br>(0.150)   | ∖<br>∖                                       |
| TOBINQ  | -0.4245<br>(-2.087)                         | -0.3885<br>(-2.017)  | -0.4028<br>(-2.399)   | -0.2851<br>(-1.754)   | -0.3142<br>(-2.130)   | ∖<br>∖                                       |
| CFEQ  | -0.0707<br>(-0.384)                         | -0.2318<br>(-1.547)  | -0.1800<br>(-1.538)   | -0.0369<br>(-0.318)   | -0.0381<br>(-0.320)   | ∖<br>∖                                       |
| AGENCY  | 0.4794<br>(1.639)                           | 0.5928<br>(2.177)  | 0.5994<br>(2.660)   | 0.3906<br>(1.858)   | 0.4132<br>(-2.000)  | 0.0306<br>(0.210)                            |
| CONC  | 0.1946<br>(0.498)                           | 0.4114<br>(1.041)  | 0.3598<br>(1.048)   | 0.9906<br>(2.460)   | 1.2316<br>(3.240)   | ∖<br>∖                                       |
| *** significant at 1%      ** significant at 5%      * significant at 10%     |   |  |   |   |   |  |

Table 14 (Continued)

| Regressions on the US sample - Dependant Variable = Daily CARs (event window) |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression US1<br>Full Model<br>Mgt dummies | Regression US2<br>Full Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US3<br>Reduced Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US4<br>Reduced Model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression US5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression US6<br>Only Critical<br>Variables |
| FOUNDER   | -0.3825<br>(-0.866)                         | 0.0766<br>(0.186)  | -0.0838<br>(-0.253)   | -0.2428<br>(-0.822)   | -0.3836<br>(-1.410)   | /  |
| CORP  | -0.4196<br>(-0.991)                         | -0.6067<br>(-1.484)  | -0.5741<br>(-1.567)   | -1.0655<br>(-2.634) ***   | -1.1418<br>(-3.040) ***   | /  |
| FIN   | -0.5359<br>(-1.305)                         | -0.4683<br>(-1.359)  | -0.4961<br>(-1.618)   | -0.9807<br>(-2.846) ***   | -1.0797<br>(-3.280) ***   | /  |
| MECHA   | -0.0169<br>(-0.104)                         | 0.1245<br>(0.755)  | 0.0862<br>(0.655)   | 0.1406<br>(1.175)   | 0.0939<br>(0.790)   | /  |
| MGTSTAKE  | 0.6810<br>(0.919)                           | -0.7866<br>(-1.226)  | -0.4518<br>(-1.087)   | 0.2041<br>(0.916)   | 0.3101<br>(1.340)   | /  |
| MGT6TO25  | -0.1538<br>(-0.787)                         | /  | /   | /   | /   | /  |
| MGTMORE25   | -0.3005<br>(-0.790)                         | /  | /   | /   | /   | /  |
| C = Concentrated, Mgt 6-25%   | /   | /  | /   | -0.0889<br>(-0.401)   | -0.0871<br>(-0.410)   | /  |
| D = Dispersed, Mgt 6-25%  | /   | 0.0938<br>(0.455)  | 0.0559<br>(0.358)   | /   | /   | /  |
| *** significant at 1%      ** significant at 5%      * significant at 10%     |   |  |   |   |   |  |

Table 14 (Continued)

| Regressions on the US sample - Dependant Variable = Daily CARs (event window) |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression US1<br>Full Model<br>Mgt dummies | Regression US2<br>Full Model<br>Situations D F<br>D = Max PPA<br>F = Max PPA | Regression US3<br>Reduced Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US4<br>Reduced Model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression US5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression US6<br>Only Critical<br>Variables |
| E = Concentrated, Mgt >25%  | \   | \  | \   | -0.8312<br>(-2.927)   | -0.9125<br>(-3.400)   | -0.0380<br>(-0.340)                          |
| F = Dispersed, Mgt >25%   | \   | 0.5890<br>(1.673)  | 0.4268<br>(1.624)   | \   | \   | \  |
| MEANROA   | -0.3505<br>(-0.610)                         | 0.0068<br>(0.014)  | -0.1592<br>(-0.791)   | -0.3894<br>(-1.714)   | -0.4929<br>(-2.070)   | \  |
| STDROA  | -0.3920<br>(-0.668)                         | 0.2486<br>(0.489)  | \   | \   | \   | \  |
| ROACHANGE   | -1.9769<br>(-1.884)                         | -1.6292<br>(-1.864)  | -1.8675<br>(-3.240)   | -2.2470<br>(-4.062)   | -2.2841<br>(-4.410)   | -1.4198<br>(-3.280)                          |
| SBO   | 0.7032<br>(1.603)                           | 0.2249<br>(0.467)  | 0.4315<br>(1.304)   | 0.2264<br>(0.702)   | 0.4050<br>(1.390)   | \  |
| MBO   | 0.1463<br>(0.871)                           | 0.0306<br>(0.196)  | 0.0806<br>(0.734)   | 0.0927<br>(0.908)   | 0.1046<br>(0.920)   | \  |
| TAKEPRIV  | -0.1715<br>(-0.976)                         | -0.1355<br>(-0.818)  | -0.1646<br>(-1.296)   | -0.1595<br>(-1.362)   | -0.1355<br>(-1.300)   | \  |
| BETAUN  | 0.0001<br>(0.074)                           | -0.0004<br>(-0.502)  | \   | \   | \   | \  |
| *** significant at 1%      ** significant at 5%      * significant at 10%     |   |  |   |   |   |  |

Table 14 (Continued)

| Regressions on the US sample - Dependant Variable = Daily CARs (event window) |   |  |   |   |   |  |
|---|---|--|---|---|---|--|
|   | Regression US1<br>Full Model<br>Mgt dummies | Regression US2<br>Full Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US3<br>Reduced Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US4<br>Reduced Model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression US5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression US6<br>Only Critical<br>Variables |
| LACK  | 0.0905<br>(0.434)                           | -0.1063<br>(-0.565)  | ✓<br>✓  | ✓<br>✓  | ✓<br>✓  | ✓<br>✓                                       |
| HERD  | -1.0009<br>(-0.554)                         | -0.3162<br>(-0.191)  | -0.7447<br>(-0.525)   | -1.2606<br>(-0.956)   | -1.8662<br>(-1.450)   | ✓<br>✓                                       |
| LOGMVEQ   | -0.1083<br>(-1.761) *                       | -0.0242<br>(-0.419)  | -0.0459<br>(-1.035)   | -0.0707<br>(-1.758) *   | -0.0598<br>(-1.480)   | ✓<br>✓                                       |
| QMR   | -0.1008<br>(-0.226)                         | 0.2280<br>(0.521)  | ✓<br>✓  | ✓<br>✓  | ✓<br>✓  | ✓<br>✓                                       |
| QRF   | -0.5556<br>(-0.324)                         | 0.1035<br>(0.064)  | ✓<br>✓  | ✓<br>✓  | ✓<br>✓  | ✓<br>✓                                       |
| REGUL   | -0.2354<br>(-1.082)                         | -0.1675<br>(-0.754)  | -0.1978<br>(-1.142)   | -0.1050<br>(-0.627)   | ✓<br>✓  | ✓<br>✓                                       |
| AGR   | ✓<br>✓                                      | ✓<br>✓   | ✓<br>✓  | ✓<br>✓  | -0.14316<br>(-0.460)  | ✓<br>✓                                       |
| *** significant at 1%      ** significant at 5%      * significant at 10%     |   |  |   |   |   |  |

**Table 14 (end)**

**Regressions on the US sample - Dependant Variable = Daily CARs (event window)**

|                       | Regression US1<br>Full Model<br>Mgt dummies | Regression US2<br>Full Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US3<br>Reduced Model<br>Situations D F<br>D = PPA<br>F = Max PPA | Regression US4<br>Reduced Model<br>Situations C E<br>C = uncertain<br>E = Mutual monitoring | Regression US5<br>Reduced Model<br>Situations C E<br>Industry dummies | Regression US6<br>Only Critical<br>Variables |
|-----------------------|---|--|---|---|---|--|
| CONSU                 | /   | /  | /   | /   | 0.18612<br>(1.010)  | /  |
| NRG                   | /   | /  | /   | /   | 0.0775<br>(0.310)   | /  |
| FINSERV               | /   | /  | /   | /   | 0.12716<br>(0.510)  | /  |
| HIGHTECH              | /   | /  | /   | /   | 0.03693<br>(0.180)  | /  |
| INDUS                 | /   | /  | /   | /   | -0.06588<br>(-0.370)  | /  |
| LEIS                  | /   | /  | /   | /   | 0.25907<br>(1.490)  | /  |
| MEDIC                 | /   | /  | /   | /   | 0.36951<br>(1.450)  | /  |
| OTHERSER              | /   | /  | /   | /   | 0.32552<br>(1.480)  | /  |
| *** significant at 1% | ** significant at 5%                        | * significant at 10%   |   |   |   |  |



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## Appendices

## **Appendix 1: Links for databases and data sources**

Bureau van Dijk Electronic Publishing (BvDEP):

<http://www.bvdep.com/>

Mergermarket database:

<http://www.mergermarket.com>

Les Echos:

<http://www.lesechos.fr/>

Paris Stock Exchange:

<http://www.boursorama.com/>

Frankfort Stock Exchange:

[http://deutsche-boerse.com/dbag/dispatch/en/kir/gdb\\_navigation/home](http://deutsche-boerse.com/dbag/dispatch/en/kir/gdb_navigation/home)

## Appendix 2: List of the LBO targets used in this paper – France, Germany, USA (1998-2004)

| <b>French Target firms</b>            | <b>Announcement</b> | <b>US Target firms (continued)</b>  | <b>Announcement</b> |
|---------------------------------------|---------------------|-------------------------------------|---------------------|
| Rexel S.A                             | 13-Dec-04           | Extended Stay America Inc.          | 5-Mar-04            |
| International Metal Services (IMS)    | 26-Jul-04           | Guilford Mills Inc.                 | 27-Feb-04           |
| Algeco SA                             | 16-Jul-04           | Trover Solutions, Inc.              | 20-Feb-04           |
| Vivarte SA                            | 20-Feb-04           | Plains Resources Inc                | 19-Feb-04           |
| AES Laboratoire Groupe                | 6-Aug-03            | Workflow Management Inc             | 2-Feb-04            |
|                                       |                     | T-Netix Inc                         | 22-Jan-04           |
| <b>German Target firms</b>            |                     | Gundle/SLT Environmental, Inc.      | 31-Dec-03           |
| Nordex AG                             | 17-Dec-04           | Duane Reade, Inc.                   | 23-Dec-03           |
| Celanese AG                           | 16-Dec-03           | AMF Bowling Worldwide Inc.          | 27-Nov-03           |
| Berliner Effektingesellschaft AG      | 23-Sep-03           | FTD Inc.                            | 6-Oct-03            |
| Scholz & Friends AG                   | 9-Jun-03            | Garden Fresh Holdings Inc.          | 30-Sep-03           |
| W.E.T. Automotive Systems AG          | 29-May-03           | Viewlocity Inc                      | 22-Sep-03           |
| Edscha AG                             | 8-Nov-02            | Pacer Technology                    | 30-Jul-03           |
| Gardena Holding AG                    | 21-Mar-02           | Edison Schools Inc                  | 14-Jul-03           |
| Varta AG                              | 9-Nov-00            | Jostens Inc.                        | 17-Jun-03           |
| Kiekert AG                            | 7-Jun-00            | Applied Graphics Technologies, Inc. | 13-Jun-03           |
| Gerresheimer Glas AG                  | 10-Apr-00           | Seminis Inc                         | 2-Jun-03            |
| Grohe Water Technology AG & Co. KG    | 16-Jul-99           | IGN Entertainment Inc.              | 2-May-03            |
|                                       |                     | Thousand Trails Inc.                | 30-Apr-03           |
| <b>US Target firms</b>                |                     | Varsity Spirit Corporation          | 22-Apr-03           |
| Cypress Communications Holding Co Inc | 5-Nov-04            | AHL Services Inc                    | 31-Mar-03           |
| Home Products International, Inc.     | 29-Oct-04           | Prophet 21, Inc.                    | 8-Nov-02            |
| Boca Resorts Inc.                     | 20-Oct-04           | BWAY Corporation                    | 1-Oct-02            |
| Select Medical Corporation            | 18-Oct-04           | Vestcom International, Inc.         | 12-Jun-02           |
| Metro-Goldwyn-Mayer, Inc. (MGM)       | 23-Sep-04           | Paradigm Geophysical Ltd            | 22-May-02           |
| Rag Shops, Inc.                       | 13-Sep-04           | The WellCare Management Group, Inc. | 17-May-02           |
| Prime Hospitality Corporation         | 18-Aug-04           | Morton's Restaurant Group Inc       | 27-Mar-02           |
| AMC Entertainment Inc.                | 22-Jul-04           | Associated Materials Incorporated   | 17-Mar-02           |
| Catalyst International, Inc.          | 29-Jun-04           | Jenny Craig Inc                     | 28-Jan-02           |
| CompuCom Systems, Inc.                | 28-May-04           | Shoney's, Inc.                      | 24-Jan-02           |
| PanAmSat Corporation                  | 20-Apr-04           | MEMC Electronic Materials, Inc.     | 1-Oct-01            |
| SciQuest, Inc                         | 12-Apr-04           | American Coin Merchandising, Inc.   | 10-Sep-01           |
| US Oncology, Inc.                     | 22-Mar-04           | Vicorp Restaurants, Inc.            | 15-Feb-01           |
| Extended Stay America Inc.            | 5-Mar-04            | Mark IV Industries Inc              | 30-May-00           |

### Appendix 3: Ownership structure information on Secondary LBOs – France, Germany, USA (1998-2004)

| Name of Target                                       | Target Country | Target Sector     | Public or Private | First LBO date | Second LBO announcement date | Holding period (years) | First Financier Stake | First Financier Action   |
|--|----------------|-------------------|-------------------|----------------|------------------------------|------------------------|-----------------------|--|
| Picard Surgelés                                      | France         | Consumer          | Private           | February-01    | October-04                   | 4                      | 70.00%                | Growth in France, increased of the offer                                       |
| Sains du Midi  | France         | Consumer          | Private           | July-00        | August-04                    | 5                      | 100.00%               | Foreign acquisitions, sale of assets   |
| Groupe Fives-Lille (majority stake)                  | France         | Industry          | Private           | February-01    | July-04                      | 4                      | 100.00%               | Acquisitions   |
| Prezioso   | France         | Construction      | Private           | January-00     | December-02                  | 3                      | 70.00%                | Acquisition of new assets, development on international markets                |
| Eau Ecartere   | France         | Consumer          | Private           | September-00   | December-01                  | 2                      | 90.00%                | na   |
| Métaux Speciaux SA (MISSA)                           | France         | Industry          | Private           | January-98     | June-01                      | 4                      | 90.00%                | na   |
| Getka Brush GmbH                                     | Germany        | Industry          | Private           | January-99     | December-04                  | 6                      | 100.00%               | na   |
| Autobahn Tank & Rast GmbH                            | Germany        | Consumer          | Private           | January-98     | November-04                  | 7                      | 60.00%                | na   |
| Gerrheimer Glas AG                                   | Germany        | Industry          | Private           | January-00     | November-04                  | 5                      | 100.00%               | Business reorientation   |
| Honsel International Technologies S.A R.L.           | Germany        | Industry          | Private           | January-99     | August-04                    | 6                      | 100.00%               | Changed legal status to limited partnership, merged with Canadian subsidiaries |
| Grohe Water Technology AG & Co. KG                   | Germany        | Industry          | Private           | July-99        | May-04                       | 6                      | 94.00%                | Increased Grohe's presence on the North American market through acquisition    |
| Sirona Dental Systems GmbH                           | Germany        | Medical           | Private           | January-97     | October-03                   | 7                      | 100.00%               | Split in 2 companies   |
| Nortek Holdings Inc.                                 | USA            | Industry          | Private           | January-03     | July-04                      | 1                      | 82.40%                | Took private   |
| Leiner Health Products Inc                           | USA            | Medical           | Private           | January-97     | April-04                     | 8                      | 85.60%                | Implemented a series of initiatives  |
| Amescan Holdings Inc                                 | USA            | Consumer          | Private           | August-97      | March-04                     | 8                      | 74.80%                | Strategic plan that moved the company into new sales channels                  |
| Cinemark, Inc.                                       | USA            | Leisure and Media | Private           | February-96    | March-04                     | 9                      | 44.00%                | na   |
| The Hillman Companies, Inc (formerly SunSource, Inc) | USA            | Industry          | Public            | March-02       | February-04                  | 3                      | 96.50%                | Divestitures, acquisitions, focus on profitable unit                           |
| Communications & Power Industries, Inc.              | USA            | Industry          | Private           | August-95      | December-03                  | 9                      | 71.70%                | na   |
| Simmons Bedding Company                              | USA            | Industry          | Private           | July-99        | November-03                  | 5                      | 71.00%                | Acquisitions   |
| Michael Foods Inc.                                   | USA            | Consumer          | Private           | December-00    | October-03                   | 4                      | 61.10%                | Growth strategy  |
| Jostens Inc.   | USA            | Industry          | Public            | January-99     | June-03                      | 5                      | 88.00%                | na   |

## Appendix 3 (end)

| Name of Target                                       | Deal Value (mEUR for European firms, mUSD for US firms) | First Financial IRR | Mgmt In / Out | Prior Mgt Stake | Post Mgt Stake | Tobin Q | CF/EQ | PAA conflict | Mean ROA | Std Dev ROA | ROA change |
|--|---|---------------------|---------------|-----------------|----------------|---------|-------|--------------|----------|-------------|------------|
| Picard Surgetes                                      | 1300  | 9.03%               | In            | 10.00%          | 10.00%         | 21.614  | 0.053 | no           | 17.13%   | 9.22%       | 3.71%      |
| Salins du Midi                                       | 115   | -16.87%             | In            | 18.00%          | 18.00%         | 1.160   | 0.245 | no           | 6.31%    | 2.00%       | 0.17%      |
| Groupe Fives-Lille (majority stake)                  | 330   | -5.37%              | In            | 0.00%           | 49.00%         | 4.489   | 0.180 | no           | 3.89%    | 0.16%       | 0.09%      |
| Prezioso   | 170   | 7.38%               | In            | 30.00%          | 20.00%         | 6.452   | 0.153 | no           | 5.69%    | 8.42%       | 3.82%      |
| Eau Ecartere   | 72  | 11.34%              | In            | 10.00%          | 20.00%         | 17.630  | 0.081 | no           | 6.73%    | 0.72%       | 0.42%      |
| Metreux Speciaux SA (MSSA)                           | 91  | 62.73%              | out           | 10.00%          | 0.00%          | 7.035   | 0.121 | no           | 8.53%    | 6.34%       | -0.74%     |
| Geka Brush GmbH                                      | 78  | 35.18%              | In            | 0.00%           | 20.00%         | 11.612  | 0.122 | no           | 6.55%    | 2.35%       | 0.86%      |
| Autobahn Tank & Rast GmbH                            | 1035  | 1.81%               | In            | 0.00%           | 0.01%          | 7.724   | 0.126 | no           | 9.11%    | 0.75%       | -0.53%     |
| Gerresheimer Glas AG                                 | 600   | 15.39%              | In            | 0.00%           | 0.00%          | 14.938  | 0.035 | no           | 5.93%    | 6.02%       | -2.15%     |
| Honsel International Technologies S.A. R.L.          | 410   | 15.63%              | out           | 0.00%           | 0.00%          | 12.118  | 0.189 | no           | 8.10%    | na          | na         |
| Grohe Water Technology AG & Co. KG                   | 1642  | -2.60%              | In            | 4.95%           | 4.95%          | 171.399 | 0.134 | no           | 29.31%   | 12.31%      | -1.50%     |
| Sirona Dental Systems GmbH                           | 418   | 15.86%              | In            | 0.00%           | 15.00%         | 18.818  | 0.126 | no           | 4.18%    | 1.42%       | -0.11%     |
| Nortek Holdings Inc.                                 | 1750  | 9.37%               | In            | 17.60%          | 33.00%         | 20.097  | 0.091 | no           | 1.89%    | 1.32%       | -0.43%     |
| Leiner Health Products Inc                           | na  | 7.00%               | In            | 3.90%           | 2.22%          | na      | na    | na           | -14.15%  | 21.36%      | -15.10%    |
| Amscan Holdings Inc                                  | 540   | 3.50%               | In            | 7.80%           | 1.20%          | 117.187 | 0.125 | no           | 3.86%    | 0.75%       | 0.40%      |
| Cinemark, Inc.                                       | 1560  | 16.05%              | In            | 50.50%          | 16.00%         | 28.593  | 0.112 | no           | -0.44%   | 0.77%       | -0.54%     |
| The Hillman Companies, Inc (formerly SunSource, Inc) | 510   | 39.71%              | out           | 1.50%           | 14.08%         | 2.922   | 0.064 | no           | -1.31%   | na          | na         |
| Communications & Power Industries, Inc.              | 300   | -0.27%              | In            | 4.37%           | 1.00%          | -25.058 | 0.095 | no           | -4.11%   | 4.12%       | -1.31%     |
| Simmons Bedding Company                              | 1100  | 15.68%              | In            | 1.06%           | 3.30%          | -23.990 | 0.050 | no           | -1.76%   | 1.39%       | 0.83%      |
| Michael Foods Inc.                                   | 1050  | -4.62%              | out           | 21.10%          | 7.10%          | 11.022  | 0.146 | no           | 4.61%    | 3.35%       | -1.01%     |
| Jostens Inc.   | 432   | -16.20%             | In            | 3.07%           | 0.90%          | 3.881   | 0.366 | no           | 5.49%    | 7.07%       | -0.46%     |

**Appendix 4: The effects of accounting differences between Us and France and Germany – 4 French firms and 4 German firms listed on the NYSE.**

Sources: SEC filings (20F)

Market value of Equity: Paris Stock Exchange and Frankfurt Stock Exchange websites

France:

|                               | French GAAP              |                |               | US GAAP                  |                |               | (US - French) |               |               |
|-------------------------------|--------------------------|----------------|---------------|--------------------------|----------------|---------------|---------------|---------------|---------------|
|                               | t1<br>(in Million euros) | t2             | ROA<br>change | t1<br>(in Million euros) | t2             | ROA<br>change | t1            | t2            | ROA<br>change |
| <b>Thomson</b>                |                          |                |               |                          |                |               |               |               |               |
| Net Income                    | 26                       | -636           |               | 351                      | -46            |               |               |               |               |
| Shareholder's equity          | 3583                     | 2670           |               | 3433                     | 2577           |               |               |               |               |
| Total Assets                  | 9280                     | 8525           |               | 9280                     | 8525           |               |               |               |               |
| BV Debt                       | 2583                     | 2465           |               | 2583                     | 2465           |               |               |               |               |
| Market value of Equity (2006) | 3927                     | 3927           |               | 3927                     | 3927           |               |               |               |               |
| <b>ROA</b>                    | <b>0.28%</b>             | <b>-7.46%</b>  | <b>-7.74%</b> | <b>3.78%</b>             | <b>-0.54%</b>  | <b>-4.32%</b> | <b>3.50%</b>  | <b>6.92%</b>  | <b>3.42%</b>  |
| <b>Tobin's Q</b>              | <b>0.70</b>              | <b>0.75</b>    |               | <b>0.70</b>              | <b>0.75</b>    |               | <b>0.00</b>   | <b>0.00</b>   |               |
| <b>Group Danone</b>           |                          |                |               |                          |                |               |               |               |               |
| Net Income                    | 591                      | 1167           |               | 399                      | 1335           |               |               |               |               |
| Shareholder's equity          | 4256                     | 5280           |               | 4472                     | 5434           |               |               |               |               |
| Total Assets                  | 16079                    | 16725          |               | 13285                    | 13993          |               |               |               |               |
| BV Debt                       | 7204                     | 6561           |               | 7204                     | 6561           |               |               |               |               |
| Market value of Equity (2006) | 24632                    | 24632          |               | 24632                    | 24632          |               |               |               |               |
| <b>ROA</b>                    | <b>3.68%</b>             | <b>6.98%</b>   | <b>3.30%</b>  | <b>3.00%</b>             | <b>9.54%</b>   | <b>6.54%</b>  | <b>-0.67%</b> | <b>2.56%</b>  | <b>3.24%</b>  |
| <b>Tobin's Q</b>              | <b>1.98</b>              | <b>1.87</b>    |               | <b>2.40</b>              | <b>2.23</b>    |               | <b>0.42</b>   | <b>0.36</b>   |               |
| <b>France Telecom</b>         |                          |                |               |                          |                |               |               |               |               |
| Net Income                    | 3017                     | 5709           |               | 2959                     | 5697           |               |               |               |               |
| Shareholder's equity          | 14451                    | 24860          |               | 4029                     | 13150          |               |               |               |               |
| Total Assets                  | 98963                    | 109350         |               | 98963                    | 109350         |               |               |               |               |
| BV Debt                       | 49822                    | 47846          |               | 49822                    | 47846          |               |               |               |               |
| Market value of Equity (2006) | 45814                    | 45814          |               | 45814                    | 45814          |               |               |               |               |
| <b>ROA</b>                    | <b>3.05%</b>             | <b>5.22%</b>   | <b>2.17%</b>  | <b>2.99%</b>             | <b>5.21%</b>   | <b>2.22%</b>  | <b>-0.06%</b> | <b>-0.01%</b> | <b>0.05%</b>  |
| <b>Tobin's Q</b>              | <b>0.97</b>              | <b>0.86</b>    |               | <b>0.97</b>              | <b>0.86</b>    |               | <b>0.00</b>   | <b>0.00</b>   |               |
| <b>Rhodia</b>                 |                          |                |               |                          |                |               |               |               |               |
| Net Income                    | -615                     | -632           |               | -765                     | -645           |               |               |               |               |
| Shareholder's equity          | -692                     | -546           |               | -578                     | -674           |               |               |               |               |
| Total Assets                  | 5646                     | 5566           |               | 5646                     | 5566           |               |               |               |               |
| BV Debt                       | 3014                     | 2971           |               | 3014                     | 2971           |               |               |               |               |
| Market value of Equity (2006) | 1800                     | 1800           |               | 1800                     | 1800           |               |               |               |               |
| <b>ROA</b>                    | <b>-10.89%</b>           | <b>-11.35%</b> | <b>-0.46%</b> | <b>-13.55%</b>           | <b>-11.59%</b> | <b>1.96%</b>  | <b>-2.66%</b> | <b>-0.23%</b> | <b>2.42%</b>  |
| <b>Tobin's Q</b>              | <b>0.85</b>              | <b>0.86</b>    |               | <b>0.85</b>              | <b>0.86</b>    |               | <b>0.00</b>   | <b>0.00</b>   |               |
| <b>Mean Difference</b>        |                          |                |               |                          |                |               |               |               |               |
| <b>ROA</b>                    | <b>-0.97%</b>            | <b>-1.65%</b>  | <b>-0.68%</b> | <b>-0.94%</b>            | <b>0.66%</b>   | <b>1.60%</b>  | <b>0.03%</b>  | <b>2.31%</b>  | <b>2.28%</b>  |
| <b>Tobin's Q</b>              | <b>1.13</b>              | <b>1.08</b>    |               | <b>1.23</b>              | <b>1.17</b>    |               | <b>0.10</b>   | <b>0.09</b>   |               |

## Germany:

|                               | German IFRS              |               |               | US GAAP                  |               |               | (US - French) |               |               |
|-------------------------------|--------------------------|---------------|---------------|--------------------------|---------------|---------------|---------------|---------------|---------------|
|                               | t1<br>(in Million euros) | t2            | ROA<br>change | t1<br>(in Million euros) | t2            | ROA<br>change | t1            | t2            | ROA<br>change |
| <b>Aliaz AG</b>               |                          |               |               |                          |               |               |               |               |               |
| Net Income                    | 2266                     | 4380          |               | 2881                     | 3693          |               |               |               |               |
| Shareholder's equity          | 39487                    | 29995         |               | 33380                    | 44383         |               |               |               |               |
| Total Assets                  | 990318                   | 997881        |               | 990318                   | 997881        |               |               |               |               |
| BV Debt                       | 310316                   | 348484        |               | 310316                   | 348484        |               |               |               |               |
| Market value of Equity (2006) | 1039                     | 1039          |               | 1039                     | 1039          |               |               |               |               |
| <b>ROA</b>                    | <b>0.23%</b>             | <b>0.44%</b>  | <b>0.21%</b>  | <b>0.29%</b>             | <b>0.37%</b>  | <b>0.08%</b>  | <b>0.06%</b>  | <b>-0.07%</b> | <b>-0.13%</b> |
| <b>Tobin's Q</b>              | <b>0.31</b>              | <b>0.35</b>   |               | <b>0.31</b>              | <b>0.35</b>   |               | <b>0.00</b>   | <b>0.00</b>   |               |
| <b>BASF AG</b>                |                          |               |               |                          |               |               |               |               |               |
| Net Income                    | 2004                     | 3007          |               | 1863                     | 3061          |               |               |               |               |
| Shareholder's equity          | 16602                    | 17523         |               | 17159                    | 17945         |               |               |               |               |
| Total Assets                  | 35448                    | 35670         |               | 35448                    | 35670         |               |               |               |               |
| BV Debt                       | 18846                    | 18147         |               | 18846                    | 18147         |               |               |               |               |
| Market value of Equity (2006) | 1319                     | 1319          |               | 1319                     | 1319          |               |               |               |               |
| <b>ROA</b>                    | <b>5.65%</b>             | <b>8.43%</b>  | <b>2.78%</b>  | <b>5.26%</b>             | <b>8.58%</b>  | <b>3.33%</b>  | <b>-0.40%</b> | <b>0.15%</b>  | <b>0.55%</b>  |
| <b>Tobin's Q</b>              | <b>0.57</b>              | <b>0.55</b>   |               | <b>0.57</b>              | <b>0.55</b>   |               | <b>0.00</b>   | <b>0.00</b>   |               |
| <b>Deutch Telecom</b>         |                          |               |               |                          |               |               |               |               |               |
| Net Income                    | 2                        | 6             |               | 2                        | 5             |               |               |               |               |
| Shareholder's equity          | 46                       | 50            |               | 48                       | 52            |               |               |               |               |
| Total Assets                  | 125                      | 128           |               | 137                      | 133           |               |               |               |               |
| BV Debt                       | 51                       | 47            |               | 51                       | 47            |               |               |               |               |
| Market value of Equity (2006) | 10747                    | 10747         |               | 10747                    | 10747         |               |               |               |               |
| <b>ROA</b>                    | <b>1.28%</b>             | <b>4.38%</b>  | <b>3.10%</b>  | <b>1.68%</b>             | <b>3.98%</b>  | <b>2.30%</b>  | <b>0.40%</b>  | <b>-0.40%</b> | <b>-0.80%</b> |
| <b>Tobin's Q</b>              | <b>86.18</b>             | <b>84.39</b>  |               | <b>78.70</b>             | <b>81.03</b>  |               | <b>-7.47</b>  | <b>-3.36</b>  |               |
| <b>Altana AG</b>              |                          |               |               |                          |               |               |               |               |               |
| Net Income                    | 379                      | 438           |               | 385                      | 428           |               |               |               |               |
| Shareholder's equity          | 1650                     | 2014          |               | 1683                     | 2048          |               |               |               |               |
| Total Assets                  | 2706                     | 3633          |               | 2706                     | 3633          |               |               |               |               |
| BV Debt                       | 471                      | 885           |               | 471                      | 885           |               |               |               |               |
| Market value of Equity (2006) | 140                      | 140           |               | 140                      | 140           |               |               |               |               |
| <b>ROA</b>                    | <b>14.01%</b>            | <b>12.06%</b> | <b>-1.95%</b> | <b>14.23%</b>            | <b>11.78%</b> | <b>-2.45%</b> | <b>0.22%</b>  | <b>-0.28%</b> | <b>-0.50%</b> |
| <b>Tobin's Q</b>              | <b>0.23</b>              | <b>0.28</b>   |               | <b>0.23</b>              | <b>0.28</b>   |               | <b>0.00</b>   | <b>0.00</b>   |               |
| <b>Mean Difference</b>        |                          |               |               |                          |               |               |               |               |               |
| <b>ROA</b>                    | <b>5.29%</b>             | <b>6.33%</b>  | <b>1.03%</b>  | <b>5.36%</b>             | <b>6.18%</b>  | <b>0.82%</b>  | <b>0.07%</b>  | <b>-0.15%</b> | <b>-0.22%</b> |
| <b>Tobin's Q</b>              | <b>21.82</b>             | <b>21.39</b>  |               | <b>19.95</b>             | <b>20.55</b>  |               | <b>-1.87</b>  | <b>-0.84</b>  |               |

**Appendix 5: Particularities of the Daily, Weekly, Second Weekly and Monthly samples (French, German and US targets, 1998-2004)**

Although the regressions have been conducted on different timeframes, some firms still presented problems for the event studies; they are listed below:

The French firms Petit Boy and Siaci have been deleted from the sample: the lack of active days, week and months made any timeframe of event study unusable.

Daily Sample:

**France:** Grand Vision, Mecatherm, FPÉE, Labeyrie, Marc Orian, Cie de Fives-Lille and Marie Brizard et Roger have been deleted from the daily data because of a lack of trading on the event day and the following days.

**Germany:** Grammer had been deleted from the daily data because of a lack of trading on the event day and the following days.

**USA:** One Price Clothing Store, Colorado Medtech and Ameripath have been deleted from the daily data because of a lack of trading on the event day and the following days.

Weekly sample:

**France:** Grand Vision, FPÉE Industries, AES Laboratoires, Labeyrie, Marc Orian and Marie Brizard et Roger have been deleted from the weekly data because of a lack of trading (missing more than 2 weeks in a row); beside, the following firms had less than 12 months available after the event: Rexel (6), International Metal Service (10), Algeco (9), and Vivarte (6)

**Germany:** Weekly data: Scholz and Friends only had 79 month prior to the event available



**US:** Cypress Communications Holding Co, The Rag Shop, Guilford Mills, AMF Bowling Worldwide, Josten, the Wellcare Management Group, One PriceClothing Store, The Hillman companies and Associated Material have been deleted from the monthly data because of a lack of trading (missing more than 2 months in a row); beside, the following firms had less than 12 months available after the event: Prime Hospitality Corp (8), Extended Stay America (10), T-Netix (7), and Boca Resort (8).

Second Weekly:

Idem, except that all german firms are included in the sample.

Monthly sample:

**France:** Labeyrie only had 35 months previous to the event available.

**Germany:** Nordex, Scholz and Friends and Edscha respectively had 45, 19 and 44 months available prior to the event.

**USA:** the following firms had less than 50 months available prior to the event: Select Medical (42), Guilford Mills (16), AMF Bowling Worldwide (20), FTD (16), Viewlocity (37), Edison Schools (44), Seminis (48), IGN Entertainment (38), Paradygm Geophysical (47), Associated Medical (49)

## Appendix 6: Tests on Standardized CARs (SCARs)

In the dummy approach, if  $d$  is the dummy variable equal to 1 if the day belongs to the event window and 0 otherwise, the estimate  $\gamma_i$  of  $d_i$  is the average abnormal return for the event window for firm  $i$ .  $\gamma_i$  is associated with a t-test  $t_i$ , which remains the same when I compute the cumulative average abnormal return of window  $i$ ,  $CAR_i = n_i * \gamma_i$  ( $n_i$  being the number of days in the window  $i$ ). This means that the standardized  $CAR_i$  of firm  $i$ , defined as

$$SCAR_i = \frac{CAR_i}{s_{SCAR_i}},$$

is also equal to  $t_i$ . I therefore used the t-tests of the event window dummy

estimate obtained with the regression of the stock prices on the market price and the 3 dummies.

To test the robustness of my event study results, I performed non-parametric tests on the SCARs (or t-tests) of the event dummy estimate  $\gamma_2$  for the full sample (France, Germany and USA), for the daily, weekly, second weekly and monthly samples. The results of these tests are presented in the following tables. I also plotted the distribution in the following graphs (the normal distribution  $N \sim (0, 1)$  is in black, and the SCARs distribution is in red). For the daily, weekly and second weekly samples, the mean is positive, there are more than 5% of observations in the right tail, and more than 65% of the sample is positive values. This shows that the announcement of a LBO transaction has indeed an impact on the stock price and that abnormal returns tend to be strictly positive. The monthly sample however is less satisfying, since the mean (0.1279%) is much closer to 0, only 1.3% of observations are in the right tail, and only 55.8% of observations are positive. I therefore do not take the monthly sample into account in my following analysis.

Among the 3 daily and weekly samples, the daily one seems to be the most relevant to use, with the highest mean, percentage in the right tail and percentage of positive value. Besides,

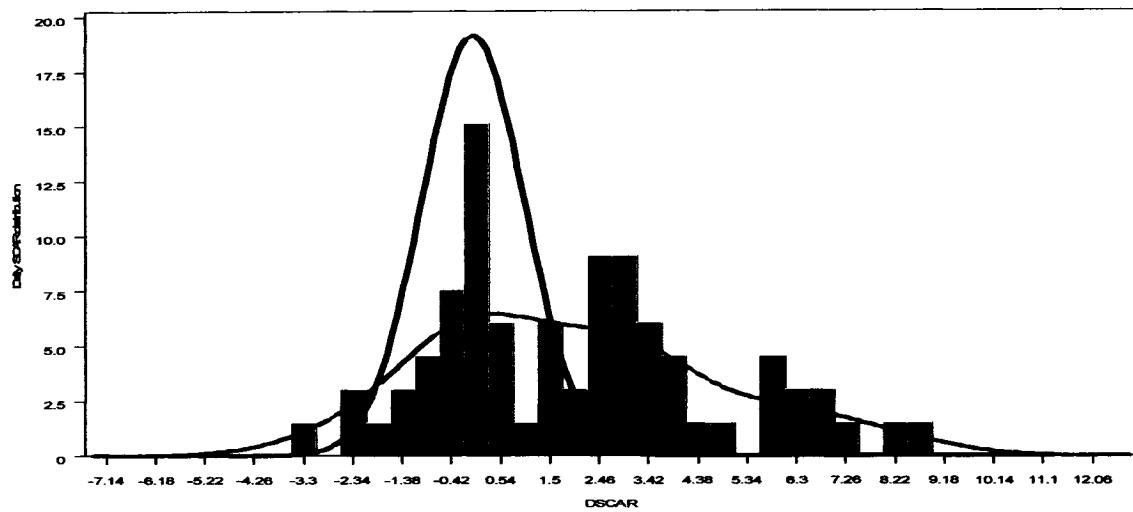
the country SCAARs in the daily sample are higher than those in the weekly samples. I therefore use the daily abnormal returns in the regressions against PAA and PPA variables.

| Daily Standardized CAR (t2) |           |        | Weekly Standardized CAR (t2) |           |        |
|-----------------------------|-----------|--------|------------------------------|-----------|--------|
| Mean                        | 1.968881  | >0     | Mean                         | 1.139188  | >0     |
| Median                      | 1.681003  | >0     | Median                       | 0.734233  | >0     |
| Min                         | -3.290563 |        | Min                          | -3.195268 |        |
| Max                         | 8.717378  |        | Max                          | 6.265404  |        |
| positive values             | 48        | 72.73% | positive values              | 40        | 64.52% |
| Number of firms             | 66        |        | Number of firms              | 62        |        |
| t>1.96                      | 32        | 48.48% | t>1.96                       | 21        | 33.87% |
| t<-1.96                     | 3         | 4.55%  | t<-1.96                      | 3         | 4.84%  |
| St CAAR for France          | 1.549024  | low    | St CAAR for France           | 0.4880727 | low    |
| St CAAR for Germany         | 3.0153691 | high   | St CAAR for Germany          | 0.6390206 | low    |
| St CAAR for Europe          | 3.3789783 | high   | St CAAR for Europe           | 0.8019714 | low    |
| St CAAR for USA             | 16.877446 | high   | St CAAR for USA              | 10.344983 | high   |

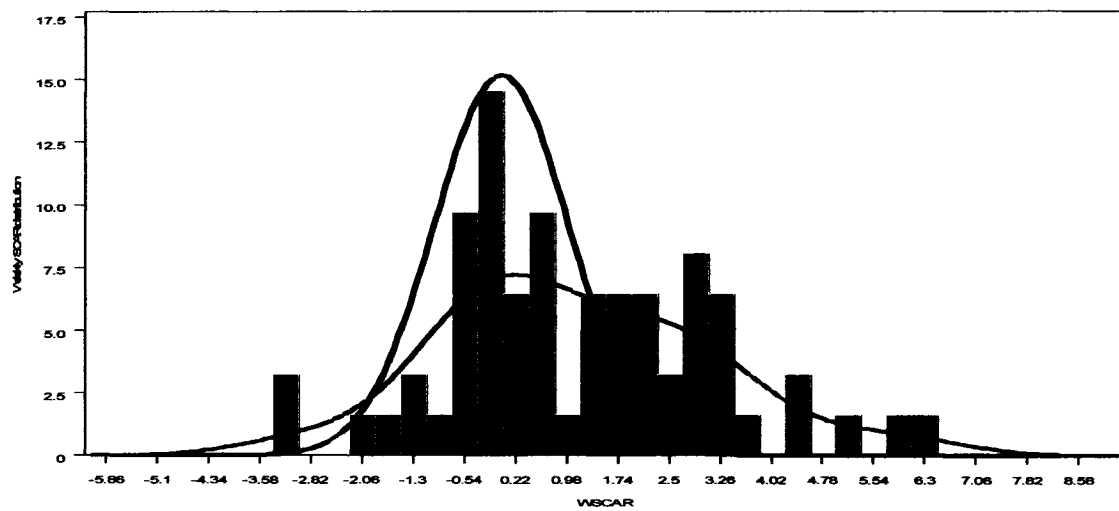
  

| Monthly Standardized CAR (t2) |           |        | Second Weekly Standardized CAR (t2) |           |        |
|-------------------------------|-----------|--------|-------------------------------------|-----------|--------|
| Mean                          | 0.127923  | >0     | Mean                                | 1.1174133 | >0     |
| Median                        | 0.041747  | >0     | Median                              | 1.046432  | >0     |
| Min                           | -2.179742 |        | Min                                 | -3.076055 |        |
| Max                           | 2.297506  |        | Max                                 | 5.580642  |        |
| positive values               | 43        | 55.84% | positive values                     | 41        | 66.13% |
| Number of firms               | 77        |        | Number of firms                     | 62        |        |
| t>1.96                        | 1         | 1.30%  | t>1.96                              | 20        | 32.26% |
| t<-1.96                       | 1         | 1.30%  | t<-1.96                             | 4         | 6.45%  |
| St CAAR for France            | 0.9082176 | low    | St CAAR for France                  | 0.5557292 | low    |
| St CAAR for Germany           | 1.0613222 | low    | St CAAR for Germany                 | 0.8600499 | low    |
| St CAAR for Europe            | 1.3958099 | low    | St CAAR for Europe                  | 1.0239548 | low    |
| St CAAR for USA               | 0.3826711 | low    | St CAAR for USA                     | 9.983482  | high   |

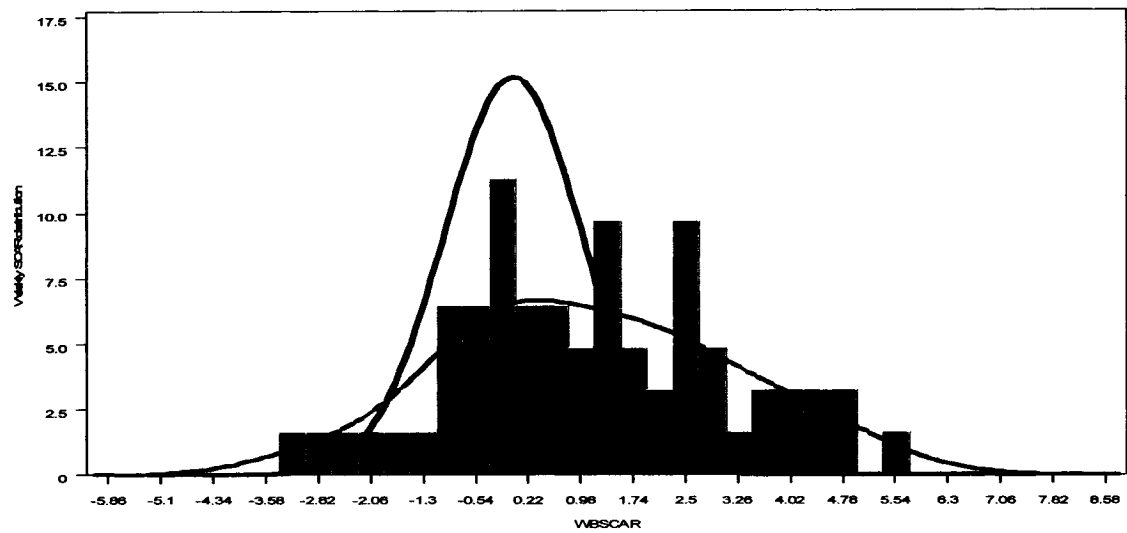
Distribution of Daily SCAARs



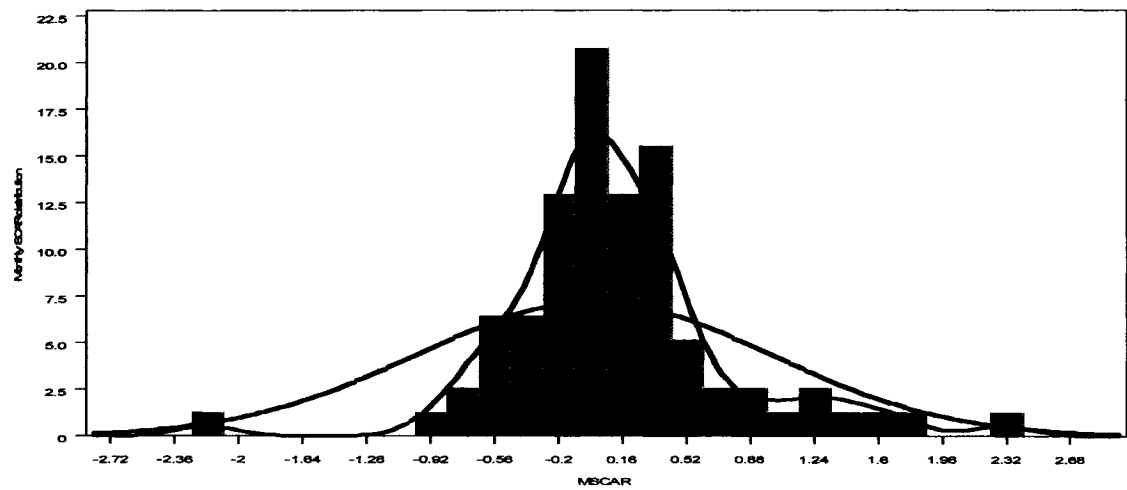
Distribution of Weekly SCAARs



Distribution of Second Weekly SCAARs



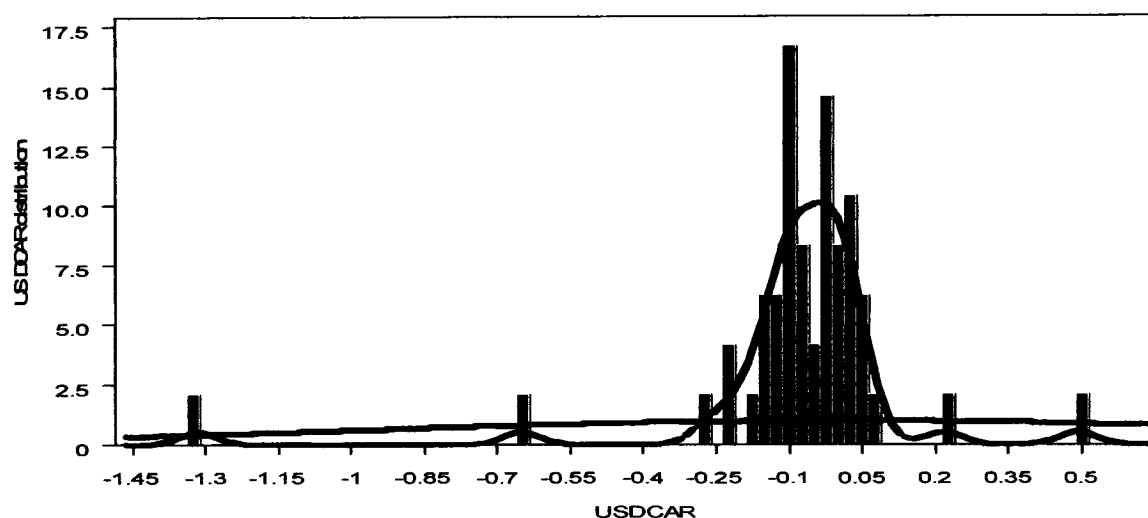
Distribution of monthly SCAARs



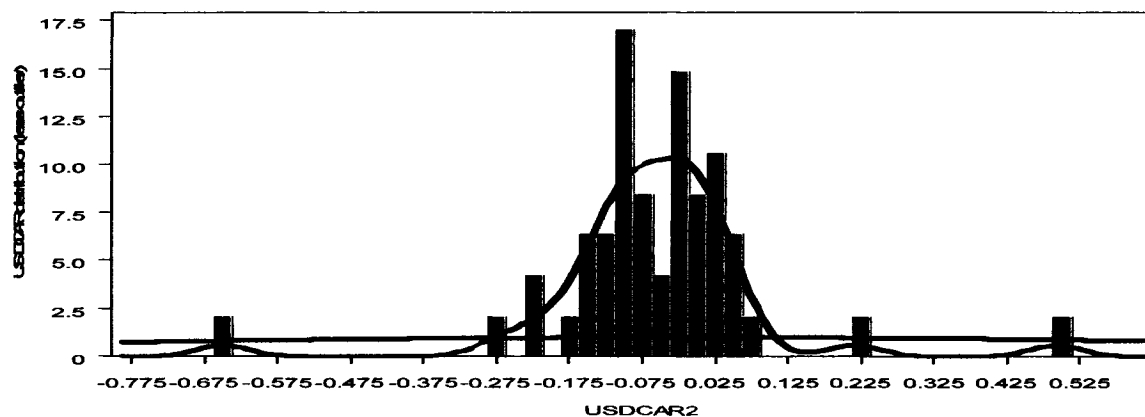
# Appendix 7: Corrections and tests for the post-event window CAARs - France, Germany, USA (1998-2004)

## Elimination of outliers:

The distribution of the US CARs for the post event window is plotted in the following graph:



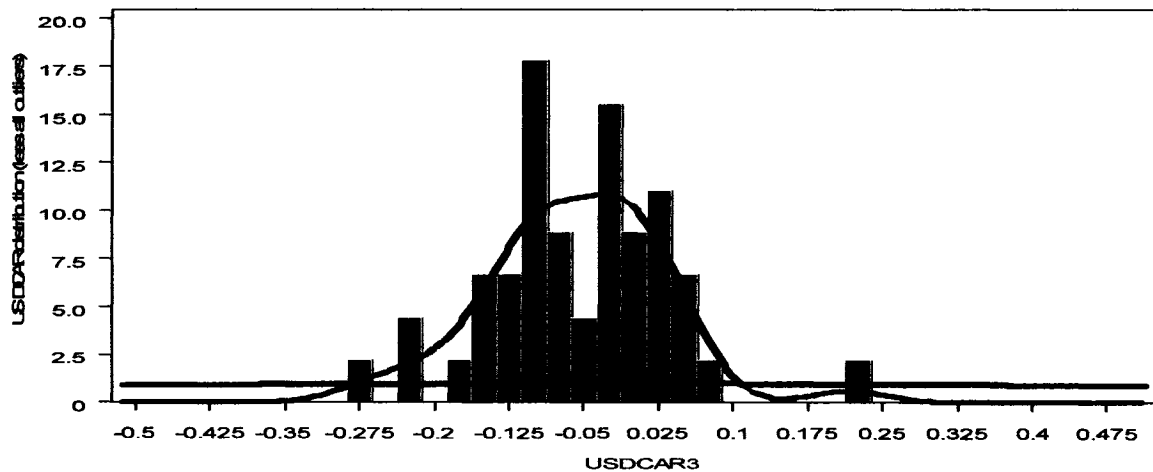
The mean of the distribution is -8.45%, the median is -5.9%, and the standard deviation is 23.29%. There is a major outlier on the negative side, and I removed it to check whether it was driving the results; the distribution is then:



The mean of the distribution becomes -5.83%, the median -5.06% and the standard deviation 14.73%. The considerable reduction in mean and standard deviation show that this outlier was partly driving the results. I then eliminate all extreme outliers of the distribution, i.e. firms for which  $CAR < Q_1 - 3IQR$  and  $CAR > Q_3 + 3IQR$ , with the IQR being the interquartile range  $Q_3 - Q_1$ . The quartiles, obtained by SAS, are:

|        |         |
|--------|---------|
| Max    | 0.4937  |
| Q3     | -0.0031 |
| Median | -0.0594 |
| Q1     | -0.1091 |
| Min    | -1.3152 |

I therefore eliminate all observation less than -42.71% and more than 31.49%. The obtained distribution has a mean of 5.74%, a median of 5.06% and a standard deviation of 8.83%.



The outliers of the post-event CARs for the US sample therefore partly explain the negative mean, but not entirely.

### Tests for autocorrelation and heteroscedasticity:

The Durbin-Watson test and the White test have been done on the daily sample. The number of firms with autocorrelation and/or heteroscedasticity are presented in the following table:

| Regressions with autocorrelation |   |       | Regressions with heteroscedasticity |        |
|----------------------------------|---|-------|-------------------------------------|--------|
| France                           | 0 | 0.00% | 2                                   | 40.00% |
| Germany                          | 0 | 0.00% | 4                                   | 30.77% |
| USA                              | 1 | 2.08% | 14                                  | 29.17% |
| Full sample                      | 1 | 1.52% | 20                                  | 30.30% |

### White correction for heteroscedasticity:

#### **CAAR for each Country (Daily) - White Correction**

(estimation period: -275, -26)

| Nb of firms |    | Runup<br>(-25, -2) | Event<br>(-1, 2)  | Post event<br>[3, (min delisting, 30)] |
|-------------|----|--------------------|-------------------|--|
| France      | 5  | 3.10%<br>(0.522)   | 2.61%<br>(0.441)  | -1.57%<br>(-0.957)                     |
| Germany     | 13 | 6.81%<br>(0.73)    | 2.60%<br>(0.802)  | -1.23%<br>(-1.043)                     |
| USA         | 48 | 1.76%<br>(0.165)   | 21.50%<br>(3.694) | -8.45%<br>(-4.321)                     |

#### **CAAR Europe vs. USA (Daily) - White correction**

(estimation period: -275, -26)

| Nb of firms |    | Runup<br>(-25, -2) | Event<br>(-1, 2)  | Post event<br>[3, (min delisting, 30)] |
|-------------|----|--------------------|-------------------|--|
| Europe      | 18 | 5.78%<br>(0.895)   | 2.60%<br>(0.914)  | -1.33%<br>(-1.391)                     |
| USA         | 48 | 1.76%<br>(0.165)   | 21.50%<br>(3.694) | -8.45%<br>(-4.321)                     |



The negative US run-ups are even more significant.

Regressions based on Schwert (1996):

Schwert examine the “theoretical and empirical relations between pre-bid runups and post-bid markups conditional on various types of information that were available in the market prior to merger or tender offer bids” (p155), using a sample from 1975 to 1991. He tests whether there is substitution between the run-up period and what he calls the mark-up, i.e. a window including both the event and the post-event windows.

Run-up = CAAR of the full sample for the window (-25, -2)

Mark-up = CAAR of the full sample for the window (-1, +30)

Premium = run-up + mark-up.

Based on Schwert (1996), 2 regressions:

$$(1) \text{ premium} = a_1 + b * \text{runup} + \varepsilon_1$$

$$(2) \text{ markup} = a_2 + c * \text{runup} + \varepsilon_2$$

where c is supposed to be equal to b-1. My regressions are presented in the following table:

| Regressions Runup and Markup, Full sample |         |         |         |         |
|---|---------|---------|---------|---------|
| Regression:                               | 1       |         | 2       |         |
| Dependant Variable:                       | Premium |         | Markup  |         |
| Number of observations                    |         |         |         |         |
| R Square                                  | 0.2415  |         | 0.0147  |         |
| Adj R Square                              | 0.2296  |         | -0.0007 |         |
| Intercept                                 | 0.09181 |         | 0.09006 |         |
|   | (1.89)  | *       | (1.83)  | **      |
| Runup                                     | b=      | 1.25711 | c=      | 0.27591 |
|   |         | (4.51)  |         | (0.98)  |
|   |         | ***     |         |         |
| Markup                                    | \       |         | \       |         |
|   | \       |         | \       |         |

I find results consistent with those of Schwert (1996):

I find no relation between the mark-up and the run-up, since b is not significantly different from 1 (my t-tests are based on  $H_0 = b \text{ is different from } 0$ ) and c is not significantly different from 0. Besides, the magnitude of b is equivalent to the one he finds: 1.13 for the full sample, 1.018 for the successful transactions, 0.866 for MBOs, and 1.396 for transactions in 1991 (the latest and therefore closest to my sample). I also find that c is roughly equal to b-1, and my adjusted R-square is very close to his adjusted R-Squares, especially for the MBOs sample (0.22).