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The literature on LBOs, MBOs, MBIs and IBOs**  
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## Summary

This paper provides an exhaustive literature review of the motives for public-to-private and LBO transactions. First, the paper develops the theoretical framework for the potential sources of value creation from going private: a distinction is made between the reduction of shareholder-related agency costs, stakeholder wealth transfers, tax benefits, transaction costs savings, takeover defence strategies, and corporate undervaluation. The paper then reviews and summarizes how these theories have been empirically verified in the four different strands of literature in the LBO research. These strands of literature are categorized by phase in the LBO transaction: Intent (of a buyout), Impact (of the LBO on the various stakeholders), Process (of restructuring after the leveraged buyout) and Duration (of retaining the private status). Then, the paper shows that an economically important public-to-private market has re-emerged in the US, UK and Continental Europe since the second half of the 1990s, and it studies its drivers. Finally, the paper draws some conclusions about the completeness of the current body of empirical literature, and provides suggestions for further research.

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**JEL classification:** G3, G32, G34, G38.

## **Public-to-Private and Private-Equity Transactions: The literature on LBOs, MBOs, MBIs and IBOs**

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## **Public-to-Private Transactions: LBOs, MBOs, MBIs and IBOs**

**Abstract:** This paper provides an exhaustive literature review of the motives for public-to-private and LBO transactions. First, the paper develops the theoretical framework for the potential sources of value creation from going private: a distinction is made between the reduction of shareholder-related agency costs, stakeholder wealth transfers, tax benefits, transaction costs savings, takeover defense strategies, and corporate undervaluation. The paper then reviews and summarizes how these theories have been empirically verified in the four different strands of literature in the LBO research. These strands of literature are categorized by phase in the LBO transaction: Intent (of a buyout), Impact (of the LBO on the various stakeholders), Process (of restructuring after the leveraged buyout) and Duration (of retaining the private status). Then, the paper shows that an economically important public-to-private market has re-emerged in the US, UK and Continental Europe since the second half of the 1990s, and it studies its drivers. Finally, the paper draws some conclusions about the completeness of the current body of empirical literature, and provides suggestions for further research.

### **1. Introduction**

The public corporation is often believed to have important advantages over its private counterpart. A stock market listing allows firms to raise funds in public capital markets, increases the share liquidity for investors, allows founders and entrepreneurs to diversify their wealth and facilitates the use of options in remuneration packages. Also, the higher degree of visibility and media exposure of public firms can be an effective tool in the marketing of the company. On the more personal level, founders and managers of public corporations generally enjoy more prestige. However, the publicly quoted company with dispersed ownership may suffer from too a high degree of managerial discretion resulting from a lack of monitoring which may lead to ‘empire building’ at the detriment of shareholder value. One way of refocusing the firm on shareholder value creation is the leveraged buyout (LBO), in which an acquirer takes control of the firm in a transaction financed largely by funds borrowed against the target’s assets and/or cash flows.

This type of transaction - initially labelled ‘bootstrapping acquisition’ (Gilhully (1999)) during its infancy in the 1960s - was significantly promoted in the 1970s by Wall Street practitioners such as Jerome Kohlberg, Jr. During the 1980s, LBOs grew dramatically in the US and subsequently also in the UK. Between 1979 and 1989, the market capitalization of public-to-private transactions in the US alone was in excess of \$250 billion (Opler and Titman (1993)). This public-to-private trend was not just limited to the smaller public companies. For instance, in 1989, the LBO-boutique Kohlberg, Kravis and Roberts took over and delisted RJR Nabisco in a deal valued at \$25 billion. Apparently, executives, financiers and investors see the private

firm as a strong alternative to the public corporation such that some even predicted the “eclipse of the public corporation” (Jensen (1989: 61)).

The sources of wealth gains from public-to-private transactions have been a focal point of academic research. While the critics of going-private transactions have continuously emphasized tax advantages and the expropriation of non-equity stakeholders as the main sources of wealth gains from going private, systematic research on public-to-private transactions does not agree. Other potential sources of wealth gains are stronger incentive alignment with a focus on performance and value, the reduction in wasting corporate resources, and improved monitoring capabilities embedded in the governance structure of an LBO. In addition, going private eliminates the costs associated with maintaining a stock market listing, but may also be motivated by a defensive strategy against hostile takeovers. Finally, going private may simply constitute a monetization of an undervalued asset.

The year 1997 marked the start of a new wave of public-to-private transactions in the US, UK and Continental Europe. The strong increase in the number of deals and in average deal value and the fact that past LBO research was limited in scope (given the focus on the US and on the 1980s) call for further research. To facilitate the development of a new research agenda, this paper analyses the motives to take public firms private and provides a structured overview of the empirical research performed in this area. It examines which types of firms go private and what are the determinants of takeover premiums in LBO transactions. It also investigates whether the post-transaction value creation as well as the duration of private status can be explained by above mentioned potential value drivers. The paper answers the questions whether or not public-to-private transactions lead to superior organization forms compared to public firms, and whether going private is a shock therapy to restructure firms which generates both strong short and long term returns. Finally, the paper documents the trends and drivers of LBO activity in the 1980s and 1990s.

The paper is organized as follows. Section 2 briefly dwells on the different types of leveraged buyouts and going-private transactions. Section 3 discusses the theoretical considerations underlying the sources of wealth gains from going private deals. Section 4 focuses on the four main strands of the literature (namely, on the Intent to do an LBO, on the Impact of the LBO measured by changes in the share price returns, on the LBO Process or on how the firm is restructured in the post-LBO stage, and on the Duration of being a private firm) and on which of the eight motives are empirically upheld in each strand. Section 5 explains the drivers behind observed LBO waves in the 1980s and 1990s. Section 6 lines out a future research agenda.

## **2 Definitions and taxonomy of leveraged buyout transactions**

When a listed company is acquired by a non-strategic buyer and subsequently delisted, the transaction is referred to as a public-to-private or a going-private transaction.<sup>1</sup> As virtually all such transactions are financed by borrowing substantially beyond the industry average, they are called leveraged buyouts (LBOs) or Highly-Leveraged Transactions (HLTs) – an overview of the different types of LBOs is given in Table 1. In fact, LBOs comprise not only public-to-private transactions but also non-listed firms that undergo a similarly leveraged acquisition. However, in line with the scope of this paper, we will use the terms LBO and public-to-private transaction interchangeably because in the empirical US and UK literature LBOs are usually confined to going-private transactions. We will state explicitly when a cited paper refers to the wider definition of LBOs.

Four categories of LBOs are generally recognized in the academic literature. To date, management-led transactions comprise the majority of public-to-private activity. When the incumbent management team takes over the firm (frequently backed by private-equity investors), the LBO is called a management buyout or MBO. When an outside management team acquires the firm and takes it private, we refer to this transaction as a management buyin (MBI). The fact that an outside management team does not have the same level of private information as the incumbent managers in MBOs, makes MBIs a completely different type of deal. An outside management team will generally target firms where the incumbent management cannot or does not want to realize the full potential of corporate value, which entails that MBIs are more frequently hostile transactions (Robbie and Wright (1995)). A deal in which the bidding team comprises members of the incumbent management team and new, externally-hired managers is sometimes referred as a buyin-management buyout (BIMBO).

When the new owners of a delisted firm are solely institutional investors or private-equity firms, one tends to refer to these transactions as institutional buyouts (IBOs) which are sometimes also called Bought Deals or Finance Purchases. In some IBOs, the continuing effort of the management team is central to the success of the offer, while in other cases the management team is removed. For the typical IBO in which management stays on, it is customary to reward managerial performance with equity stakes in the new private firm via so-called equity ratchets<sup>2</sup> (Wright, Thompson, Chiplin and Robbie (1991)). In terms of equity

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<sup>1</sup> The European Private Equity and Venture Capital Association (EVCA) defines public-to-private transactions as follows: ‘a transaction involving an offer for the entire share capital of a listed target company by a new company – Newco – and the subsequent re-registration of that listed target company as a private company. The shareholders of Newco usually comprise members of the target company’s management and private-equity providers. Additional financing for the offer is normally provided by other debt providers.’

<sup>2</sup> This is an incentive device that enables management in a post-buyout firm to increase its equity holdings upon meeting specified performance targets.

ownership, what separates MBOs from IBOs is whether the management team has gained its equity interest through being part of the bidding group (in case of an MBO) or as a component of a remuneration package (in case of an IBO). As the incumbent management in an IBO does not negotiate on behalf of the bidding group, IBOs do not spark the same controversy as MBOs.<sup>3</sup>

[Insert Table 1 about here]

After holding their investment for some time, private-equity investors can opt to exit their investment through a secondary initial public offering (SIPO). Firms that were previously taken private and subsequently reobtain public status are referred to as reverse LBO (reLBOs). Other means of exiting their investment are trade sales or a secondary buyouts, a detailed discussion of which is beyond the scope of this paper.

### **3. What motivates public-to-private transactions?**

Essentially, there are several sources of wealth gains that may motivate the going-private decision. These are: the reduction of shareholder-related agency costs (due to incentive realignment, control concentration or free cash flow reasons), wealth transfers from bondholders or other stakeholders, tax benefits, transaction costs reduction, takeover defense strategies and corporate undervaluation. In this section, we detail these motives and relate whether these reasons have been sustained in previous research.

#### ***3.1 Shareholder-related agency costs hypotheses***

In this particular case, the central dilemma of the Principal-Agent model (see Sappington (1991) for a general discussion of incentive problems in Principal-Agent models) is how to get the manager (the agent) of a company to act in the best interest of the shareholder of the company (the principal) when the agent has diverging interests from the principal's and an informational advantage. Agency theory (Jensen and Meckling (1976)) conjectures that the manager of a privately owned company or a listed firm with a major blockholder will be more prone to act in the best interest of the shareholder than the manager of a listed company with a dissipated ownership structure. Three hypotheses underlie this claim: the incentive realignment hypothesis, the control hypothesis and the free cash flow hypothesis.

##### ***3.1.1. Incentive realignment hypothesis***

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<sup>3</sup> Schadler and Karns (1990) point out the conflicts of interest of the incumbent managers in an MBO.

The insights of Adam Smith (1776) and Berle and Means (1932) on the divergence of interests between managers and stockholders in a joint stock company are formalized by Jensen and Meckling (1976). In this model, when the manager sells off a portion of the residual claims to outsiders, the marginal costs of non-pecuniary<sup>4</sup> benefits decrease as (s)he will bear only a fraction of those costs. As a result, the manager increases his (or her) private benefits (a behavioral pattern called ‘shirking’) which decreases the firm’s value for the principal. Private-equity firms rely on various mechanisms to reward key managers for good performance when they undertake a public-to-private transactions (for a detailed review, see Fenn et al. (1995)). These private-equity firms (the principal) try to re-align the interests of the managers (the agents) with theirs. Equity ownership is one straightforward way of doing so. For instance, Kaplan (1989a) reports a median increase in equity ownership of 4.41% for the two top officers, and of 9.96% for the other managers in MBOs.

*The incentive realignment hypothesis states that the shareholder wealth gains from going private are largely the result of a system of incentives providing more rewards for managers acting in line with the investors’ interests.*

The effects of the incentive realignment hypothesis at higher levels of managerial ownership are contested because entrenchment effects (Morck, Shleifer and Visny (1988) and McConnell and Servaes (1990)) may render management - even in the wake of poor performance - immune to board restructuring and may delay corporate restructuring (Franks, Mayer and Renneboog, 2001).

### *3.1.2. Free cash flow hypothesis*

Jensen (1986: 323) defines free cash flow as “cash flow in excess of that required to fund all projects that have positive net present value (NPV) when discounted at a relevant cost of capital”. Using empirical results on executive remuneration and corporate performance documented by Murphy (1985), Jensen argues that managers have incentives to retain resources and grow the firm beyond its optimal size - the so-called “empire building” - which is in direct conflict with the interests of the shareholders<sup>5</sup>. By exchanging debt for equity through higher leverage in an LBO, managers credibly “bond their promise” to pay out future cash flows rather than retaining them to invest them in negative NPV projects (Jensen (1986)). At the same time, the risk

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<sup>4</sup> These non-pecuniary (also called non-marketable perquisites or private) benefits are not transferable and are investor-specific. Possible benefits could be the reputation or ‘psychic’ value of being in control (Aghion and Bolton (1992), salary, and the value expropriated from shareholders (Dyck and Zingales (2003)).

<sup>5</sup> This problem is most severe in cash generating industries with low growth prospects, as exemplified by the US oil industry in the late 1970s (Jensen (1986)) or the life insurance industry in the 1990s (Wells et al. (1995)).

of default attached to the capital restructuring via LBOs increases the downside risk for managers (e.g. losing their jobs) who do not act in the best interest of the principal.

*Thus, the free cash flow hypothesis suggests that the shareholder wealth gains from going private are largely the result of debt-induced mechanisms forcing managers to pay out free cash flows.*

However, relying on debt to motivate managers may bring about significant agency costs of debt (e.g., an asset-substitution problem (Calcagno and Renneboog (2007))).

### 3.1.3. Control hypothesis

Easterbrook and Fischel (1983) and Grossman and Hart (1988:176) explain why individual shareholders in corporations with a dispersed shareholder base may underinvest in monitoring activities (the so-called free-rider problem). After an LBO, the equity ownership of a company is highly concentrated, giving the investors (the principal) a stronger incentive and more information to invest in monitoring management (Maug (1998) and Admati, Pleiderer and Zechner (1994)). Furthermore, judging from the viability and success of buyout specialists, DeAngelo, DeAngelo and Rice (1984) argue that these third party investors may have a comparative advantage in the monitoring task<sup>6</sup>. Altogether, this means that LBOs may create value by resolving the free-rider problem on the monitoring of management (the agent). Subsequent to the transaction, the control function of the investors may not only be more intensive, but also of higher quality.

*The control hypothesis suggests that the shareholder wealth gains from going private are largely the result of an improved monitoring system imposed on the management team.*

While the literature on agency cost theory predicts these three distinct sources of wealth gains for LBOs, it may be difficult in practice to distinguish between these hypotheses. Lowenstein (1985) best explains it with the carrot-and-stick theory: the carrot represents the increased managerial share ownership allowing managers to reap more of the benefits from their efforts (incentive realignment hypothesis). The stick appears when the default risk of high leverage “forces the managers to efficiently run the company to avoid default” (Cotter and Peck (2001:102)) and pay out free cash flows in servicing the debt (free cash flow hypothesis). The control hypothesis states that private-equity firms can step in for corrective action at any point in time, also when bankruptcy is not imminent.

<sup>6</sup> For a review of the mechanisms by which control can be exerted, please review Fenn et al. (1995: 33).

### 3.2 Hypotheses related to wealth transfers from bondholders and other stakeholders

#### 3.2.1. *Wealth transfers from bondholders*

There are three main mechanisms through which a firm can transfer wealth from bondholders to stockholders by: (i) an unexpected increase in the risk of investment projects, (ii) (large increases in) dividend payments, or (iii) an unexpected issue of debt of higher or equal seniority or shorter maturity. All these elements can effectuate wealth expropriation of specific stakeholders. In a going-private transaction, the third mechanism in particular can lead to substantial bondholder wealth expropriation.<sup>7</sup>

*The bondholder wealth transfer hypothesis suggests that shareholder wealth gains from going private are the result of the expropriation of pre-transaction bondholders.*

[Insert Table 2 about here]

Empirical research provides some evidence of wealth expropriation, mainly for those bondholders who are not protected by covenants (see Table 2). Marais et al. (1989), Amihud (1989) and Weinstein (1983) do not find negative abnormal bond returns but document that going-private transactions are followed by ‘pervasive’ debt downgradings by Moody’s. Travlos and Cornett (1993) find a statistically significant bondholder loss of 1.08%, while Warga and Welch (1993) confirm significant bondholder wealth losses for successful LBOs in the 1985-1989 periods. Asquith and Wizman (1990)) report significant losses of 1.1% for unprotected corporate bonds around the buyout. Bonds protected by covenants against leverage increases or against reductions in net worth through mergers experience abnormal gains. Correspondingly, Cook, Easterwood and Martin (1992) find that bondholder losses are sensitive to the presence of restrictive covenants. Still, Amihud (1989) explains that the wealth transfer does not represent a loss for bondholders, but is rather a recuperation of the protection which was greater than originally contracted for.<sup>8</sup>

#### 3.2.2. *Wealth transfers from other stakeholders*

The empirical literature has paid much less attention to wealth transfers other than those related to bondholders. Shleifer and Summers (1988) pose that new investors in hostile takeovers can break the implicit

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<sup>7</sup> Allowing systematic risk to vary in a manner consistent with the Black-Scholes-Merton option model framework, Weinstein (1983) presents a more formal bond beta model. The sensitivity of bond returns to the capital structure confirms the conjectured increase in risk for bondholders in case of an unexpected increase in leverage. This finding is empirically confirmed by Masulis (1980), who documents negative bondholder returns in debt-for-equity exchange offers. The bondholder wealth transfer hypothesis then dictates that this increases risk, leads to debtholder wealth losses and constitutes a wealth transfer to equityholders.

<sup>8</sup> For a detailed overview of this literature on bond wealth effects: see Renneboog and Szilagyi (2006, 2007).

contracts between the firm and stakeholders (in particular the employees by reducing employment and wages). Nevertheless, Weston et al. (1998) note that such hostility against employees is not observed in public-to-private transactions, although there is some evidence of falls in employment after adjustment for industry effects in both the US and the UK (Kaplan (1989a), Smith (1990), Harris, Siegel and Wright (2005)).

*The wealth transfer hypothesis suggests that the shareholder wealth gains from going private result from the expropriation of pre-transaction stakeholders like employees.*

### **3.3 Tax benefit hypothesis**

As the vast majority of public-to-private transactions take place with a substantial increase in leverage, the increase in interest deductions may constitute an important source of wealth gains (Lowenstein (1985)), depending on the fiscal regime and marginal tax rates. Tax deductibility of the interest on the new loans creates a major tax shield increasing the pre-transaction (or pre-recapitalization) value. For the period 1980 to 1986, Kaplan (1989b) estimates the tax benefits of US public-to-private transactions to be between 21% and 72% of the premium paid to shareholders to take the company private.<sup>9</sup> Kaplan (1989b: 613) adds that ‘a public company arguably could obtain many of the tax benefits without going private’.

*In short, the tax benefit hypothesis states that the shareholder wealth gains from going private result from tax benefits associated with the financial structure underlying the transaction.*

Still, in spite of the apparent advantages of high leverage in LBOs, it is questionable whether it constitutes a true motive to go private; in a competitive market for corporate control, the predictable and obtainable tax benefits will be appropriated by pre-buyout investors (Kaplan (1989b)), leaving no tax-related incentives for the post-buyout investors to take a company private.<sup>10</sup>

### **3.4 Transaction costs hypothesis**

DeAngelo et al. (1984) remark that the costs of maintaining a stock exchange listing are very high. From the proxy statements of, for example, Barbara Lynn Stores Inc., they infer that the costs of public ownership, registration, listing and other stockholder servicing costs, are about \$100,000 per annum. Perpetuity-

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<sup>9</sup> These calculations assume that the debt is repaid in 8 years, that the buyout company can generate sufficient taxable income, that the marginal tax rate is applied (excluding ESOP tax deductions) and that asset step-ups are effectuated. (Other sources that could generate extra taxes for the treasury as result of a leveraged going-private transaction are mentioned in Jensen, Kaplan and Stiglin (1989)).

<sup>10</sup> Renneboog et al. (2006), however, do not find any relation between the premium paid in an LBO and the expected tax shields.

capitalized at a 10% discount rate<sup>11</sup>, this implies a one million dollar value increase from going private. Other US estimates of servicing costs mentioned in their paper range from \$30,000 to \$200,000, excluding management time. For the UK, Benoit (1999) reports that for UK quoted firms, the fees paid to stockbrokers, registrars, lawyers, merchant bankers and financial PR companies, as well as the stock exchange fee and the auditing, printing and distribution of accounts amount to £250,000. Some UK CEOs estimate the City-associated costs to be even higher, between £400,000 and £1,000,000.<sup>12</sup>

*In short, the transaction costs hypothesis suggests that the shareholder wealth gains from going private result from the elimination of the direct and indirect costs associated with a listing on the stock exchange.*

### **3.5 Takeover defense hypothesis**

Lowenstein (1985:743) reports that some corporations have gone private via an MBO “as a final defensive measure against a hostile shareholder or tender offer”, an observation which supports the theoretical arguments set out by Michel and Shaked (1986). Singh (1990) confirms that US MBOs were significantly more under takeover pressure prior to the MBO than a sample of matched firms. Afraid of losing their jobs when the hostile suitor takes control<sup>13</sup>, the management may decide to take the company private. Therefore, the takeover defense hypothesis suggests that the premiums in PTPs reflect the fact that the management team may intend to buy out the other shareholders in order to insulate itself from an unsolicited takeover.

*In short, the takeover defense hypothesis suggests that the shareholder wealth gains from going private result from the management’s willingness to pay a high premium to buy out the other shareholders in order to retain control.*

### **3.6 Undervaluation hypothesis**

As a firm is a portfolio of projects (Kieschnick (1987)), there may be asymmetric information between the management and outsiders about the maximum value that can be realized with the assets in place (Ross (1977) and Lehn, Netter and Poulsen (1990)). It is possible that the management, which has superior inside information, realizes that the share price is undervalued in relation to the true potential of the firm. This problem may be exacerbated when listed corporations, especially smaller ones, find it troublesome to use the

<sup>11</sup> The discount rate is calculated based on the CAPM with the following parameters: a risk-free rate of 5% (current 3-month US T-bill rate from Bloomberg), a long-term market risk premium of 5% (Copeland et al. (2000)) and a beta of 1 (beta of the market).

<sup>12</sup> All UK numbers are from The Financial Times of August 31, 1999.

<sup>13</sup> Franks and Mayer (1996) show that over a period of 2 years subsequent to a takeover in the UK, virtually all board members of the target firm left the merged firm.

equity market to fund expansion, as it may be difficult to attract the interest of institutional shareholders, analysts, and fund managers. The lack of interest in such shares creates illiquidity and implies that they are likely to remain lowly valued which provides an impetus to go private (Mehran and Peristiani (2006)).

Lowenstein (1985) argues that when the management is the acquiring party, it may employ specific accounting and finance techniques to depress the pre-announcement share price (Schadler and Karns (1990)). By manipulating dividends, refusing to meet with security analysts or even deliberately depressing earnings, managers can use the information asymmetry to their advantage prior to an MBO. DeAngelo (1986) finds no evidence of such systematic manipulation, but both Harlow and Howe (1993) and Kaestner and Liu (1996) find that MBOs are preceded by significant abnormal buying of company shares by insiders, whereas outsider-induced buyouts are not. This confirms that pre-buyout insider trading is associated with private managerial information. Alternatively, it is possible that specialized outsiders (like institutions or private-equity investors) realize that a firm has substantial unrealized (locked-up) value.

*The undervaluation hypothesis suggests that the shareholder wealth gains from going private result from the fact that the assets are undervalued (in the eyes of the acquiring party)*

An overview of the hypotheses as well as the seminal papers of the theory are presented in Table 3.

[Insert Table 3 about here]

#### **4. Four strands in the empirical public-to-private literature**

The collective literature on public-to-private transactions and leveraged buyouts can generally be classified into four strands. Each strand corresponds to a phase in the buyout process, and requires different econometric methodologies to investigate the sources of wealth creation from LBOs. Figure 1 presents this classification and depicts the research methods generally used to study each phase of the going-private process. The literature related to the phase of *intent* describes the characteristics of firms prior to their decision to go private and compares these characteristics to those of firms which remain publicly quoted. A discriminant analysis or likelihood model is usually employed to measure the probability that a firm will go private. A (tender) offer for the shares outstanding terminates the phase of intent.

The second strand of the empirical literature measures the *impact* of such an offer and is estimated by analyzing the immediate stock price reaction (cumulative abnormal return) or the premium paid to pre-transaction shareholders. Once a company is taken private, the literature on the *process* phase investigates the post-buyout process of wealth creation, by means of quantitative or case study methodologies. If, and when,

the investor decides to end the companies' private status through an exit (e.g. via a secondary initial public offering or SIPO), hazard or duration analysis can be performed to examine the longevity of private ownership and its determinants. This constitutes the fourth strand of literature, here defined as the *duration* literature. We examine which of the eight hypotheses of Section 3 are empirically upheld in each of the four strands of this vast body of literature.

[Insert Figure 1 about here]

#### **4.1 First Strand: Intent**

##### *4.1.1. Methodological issues*

To identify the variables that distinguish best between LBOs and non-LBOs, discriminant analysis (DA) is most frequently used in this strand of the literature. DA consists of finding a transform which gives the maximum ratio of the difference between a pair of group multivariate means to the multivariate variance within the two groups. Accordingly, an attempt is made to delineate groups based upon maximizing between-group variance while minimizing within-group variance. To predict group membership (LBO versus no LBO) from a set of predictors, often called the 'training set', likelihood models like logit and probit analysis are also frequently used. A difficulty in applying these models is that firms that are good candidates for a leveraged buyout are usually also good candidates for financial restructuring through a leveraged recapitalization.

##### *4.1.2. Empirical results*

In this section, we provide an overview of the empirical literature on the pre-transaction characteristics of firms going private. This body of research is limited; most studies focus on the shareholder-related agency costs, the tax hypothesis, takeover defense and undervaluation.

##### *Empirical results on shareholder-related agency costs, tax benefits, takeover defense and undervaluation*

Maupin, Bidwell and Ortegren (1984) examine whether it is possible to separate ex ante those firms that that engage in an MBO and those that remain public. First, their discriminant analysis shows that the 63 formerly listed companies are systematically associated with high managerial shareholdings prior to the public-to-private transaction (which took place in 1972-83). This is somewhat inconsistent with the incentive realignment hypothesis as one would expect that in firms with stronger managerial ownership the agency costs of equity are smaller and that there are hence smaller gains from going private. Secondly, formerly quoted firms have a more stable cash flow stream than their counterparts that remained public.

Thirdly, a systematically lower price-to-book ratio in the buyout sample suggests that the undervaluation hypothesis may be a prime motivation for going private. Finally, a significantly higher dividend yield for the buyout firms confirms the concentration of going-private transactions in mature industries but casts doubt on the free cash flow hypothesis.

For a sample of 102 MBOs over the period 1981-85, Kieschnick (1989) finds strong support for the undervaluation hypothesis, while the data corroborate neither the free cash flow nor the transaction cost hypotheses. Judging that tax benefits could be retrieved by any potential buyer, he discards taxation as a factor driving MBOs. In contrast, Lehn and Poulsen (1989) find opposite results for a sample of US going-private transactions over largely the same period (1980-87)<sup>14</sup>: they support the free cash flow hypothesis. In addition, takeover speculation and the presence of competing bidders are significantly positively related to the likelihood of going private. This might be interpreted as support for the takeover defense hypothesis. Furthermore, as outsiders are not expected to possess the same level of superior (private) information as insiders, the authors interpret this finding as unresponsive of the undervaluation hypothesis.

Several studies re-examine Lehn and Poulsen's (1989) dataset while performing a more sophisticated analysis. For instance, Kieschnick (1998) documents that, accounting for the influence of the Lehn and Poulsen sampling procedure on the control sample, for outliers and for misspecified variables, the data fail to support the free cash flow hypothesis. He claims that the potential for tax bill reductions and firm size are the significant variables, as is the earlier takeover interest.

Firms that went private can be classified into two different groups based on pre-transaction managerial ownership. Halpern, Kieschnick and Rotenberg (1999) find that firms with low pre-transaction managerial shareholdings experience more prior takeover interest and exhibit lower leverage than their counterparts that remain public. In contrast, firms with high pre-transaction managerial control concentration have higher levels of leverage and poorer ex ante stock price performance than the matched firms that remain listed. The results show a positive relation between the propensity to go private and the managerial shareholdings for firms with higher levels of director ownership, which is inconsistent with the incentive realignment hypothesis. For either subgroup, they refute the free cash flow as a determinant for going private. In a recent study of 21 reverse LBOs, Kosedag and Lane (2002) find no support for the free cash flow hypothesis either. However, the likelihood of going private is positively related to the potential for tax savings.

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<sup>14</sup> Both studies prefer a maximum-likelihood logit framework as discriminant analysis estimators are not consistent when the data do not follow a multivariate normal distribution.

Finally, Weir, Laing and Wright (2005a) provide one of the first systematic UK studies into the likelihood of going private. They examine incentive effects, monitoring mechanisms and the role of the takeover threat by the market for corporate control for a sample of 95 public-to-private transactions completed between 1998 and 2000, and compare these transactions to a control sample created on the basis of choice-based sampling for size and industry. Their results support the incentive realignment and control hypotheses, but refute the takeover defense hypothesis. Furthermore, no evidence is found supportive of the free cash flow hypothesis or accounting underperformance, although the buyout firms do exhibit lower growth opportunities. Contrary to US evidence, the potential for tax savings does not seem to play a role in the choice to go private. In a follow-up study, Weir et al. (2005b) test for the undervaluation hypothesis. They document that firms going private were experiencing falling market values in the year before going private, while the control sample firms had rising market values. Controlling for other motivations, this perceived undervaluation is a statistically significant determinant of the decision to go private

#### *Other empirical work*

Ippolito and James (1992) observe that there is a significant increase in pension terminations following public-to-private transactions. This termination rate more than doubles for the sample firms around and after the going-private announcement, relative to firms that remain publicly quoted. Yet, the data do not provide sufficient evidence to support the wealth transfer hypothesis as described by Shleifer and Summers (1988). Likewise, the results remain inconclusive about the efficiency-improving role of going private.

Opler and Titman (1993) remark that little attention has been paid to the role of financial distress in the decision to go private. Using a sample of going-private transactions that spans the 1980s, they find strong significant evidence that the costs of potential financial distress deter firms from going private in a leveraged transaction. This leads them to conclude that “debt financing is crucial for realizing the gains from going private”, while discarding the idea that this is due to the tax benefits of debt usage. The authors also find strong support for the free cash flow hypothesis. Weir et al. (2004) investigate whether or not those US conclusions are also valid for the UK. They find no evidence that potential financial distress deters public-to-private transactions. On the contrary, firms that go private have more collateralized assets than firms that remain public. They also examine the role of private equity providers and state that these investors are more interested in participating in diversified firms with higher growth prospects.

[Insert Table 4 about here]

#### 4.1.3. Synthesis: Intent

To conclude, there is no unambiguous support for any specific hypothesis. Table 4 shows that the tax hypothesis is generally well supported in the US literature. However, the fact that firms with greater tax shields are more likely to go private does not necessarily mean that it is an important determinant. The reason is that, as it is straightforward to estimate the tax benefits of an LBO, the pre-transaction shareholders are able to fully appropriate this tax benefit (Kaplan (1989b)). It may therefore not be a motive for the parties initiating the LBO or MBO. Whereas the free cash flow hypothesis is only sporadically supported, the US going-private decisions in the 1980s are frequently motivated by anti-takeover defense strategies. The undervaluation hypothesis receives mixed support.

#### 4.2 Second Strand: Impact

If leveraged and management buyouts are associated with value creation then who is the receiver of these benefits? The wealth effects of going-private transactions have been empirically investigated for several groups of stakeholders, though the majority of the empirical literature has focused on those of the pre-buyout (selling) shareholders.

##### 4.2.1. Methodological issues

Essentially, there are two ways to measure the shareholder wealth effects in public-to-private research, namely abnormal return estimation and premiums analysis (see Renneboog, Simons and Wright (2006) for the methodological discussion). In this section, the econometric issues with both will be described, alongside a presentation of the empirical results.

*Abnormal returns* (ARs) are calculated to measure the information effect of an event on the market value of a firm. They compare the expected return, based on the CAPM, to the return observed once the information is released. Table 5 present the results of event studies in going-private research. The principal period of study has been the 1980s and virtually all samples cover the US. The typical abnormal return at the announcement of an MBO or LBO appears to be around 20% (see Table 5), with most of the buyout information generally incorporated in the share price from one day before until one day after the event date. This 20% abnormal return seems to be rather low compared to the 25%-30% range for tender offers and mergers.<sup>15</sup>

[Insert Table 5 about here]

<sup>15</sup> For the bid premiums in domestic and cross-border acquisitions in the UK and Continental Europe, see Goergen and Renneboog (2004)

Renneboog et al. (2006) point out an important measurement problem of abnormal returns in LBO research: LBO ARs may be cross-sectionally incomparable, due to the non-uniformity of the information release underlying the stock-price reaction. Two subsamples of firms going private can be distinguished. For the first subsample, the initial announcement is e.g. a recommended offer, a (hostile) tender offer, a firm intention, a mandatory offer, or simply a notification of negotiations with a disclosed bidder. Consequently, investors immediately know what type of deal has emerged (i.e. a leveraged PTP of the type MBO, MBI or IBO). For the second subsample, the information reaches the market in two stages: there is an initial notification of an imminent deal<sup>16</sup> (event 1), but the announcement disclosing the deal type only follows later (event 2). Some earlier research has taken the second date as the event date. It is clear that such results are strongly biased due to the fact that the initial announcement (event 1) has a large effect on the share price and that event 2 should merely be regarded as a correction to event 1.

An alternative methodology (premiums analysis) to measure the wealth effect calculates the real premium paid in the transaction. Instead of comparing the realized returns to estimated benchmark returns, this methodology measures the premium as the difference in the firm value between the final takeover share price and the pre-announcement price of the firm. This means that the premiums are measured over the full period of the going-private transaction, and therefore incorporate all relevant information (and hence do not suffer from the problems abnormal returns suffer from as described above). As Table 6 shows, the average premiums vary around 45%.

[Insert Table 6 about here]

Renneboog et al. (2006) point out that a premiums analysis is complicated by two problems: the choice of the right pre-takeover share price, and the definition of the final takeover share price. To allow for the share price run-up in the period preceding the first announcement of takeover interest, an anticipation window of twenty or forty days prior to the event date is chosen. Kaplan's (1989a) LBO study on the US and Goergen and Renneboog's (2004) study on European M&As both mention that the anticipation window spans approximately two months before the initial announcement. In earlier research, both the final price offered in the winning bid as well as the final share price quoted on the stock exchange before delisting have been used. The former definition is preferred as the latter only reflects the true value of the bid if shareholders sell their

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<sup>16</sup> E.g., the UK City Code requires firms to disclose takeover negotiations when there are rumors, speculation, or an untoward price movement in the shares, if it can reasonably be determined to be caused by the bidders actions. Typically, this type of announcements does not embody more than the notification of a negotiation that 'may or may not lead to an offer for the shares of the company'.

shares to the acquiring party through the stock exchange. However, if shareholders can accept an offer without involvement of the stock exchange (as in the UK), the last quoted share price may reflect only speculative movements.

As can be observed from Tables 5 and 6, the short-term wealth effects measured by abnormal returns and premiums are very different. Several explanations account for this difference. First, ARs are corrected for the expected return whereas the reported average premiums are not. Second, part of the difference can also be attributed to the fact that abnormal returns which capture the market expectations of the future profits of the buyout, include the probability that a bid fails, while the premium does not. De Angelo et al. (1984) show that the withdrawal of an offer triggers a two-day abnormal loss of 8.88% (significant at the 1% level), which Marais et al. (1989) confirm.

#### *4.2.2. Empirical results*

As the empirical literature of this strand is abundant, we present the results according to the hypotheses outlined in Section 3. We also discuss the effects of bidder competition and divisional buyouts on the share prices.

##### *Shareholder-related agency cost hypotheses*

The first systematic study of the cross-sectional variation of shareholder wealth effects in going-private transactions was performed by DeAngelo et al. (1984). They report that the average cumulative abnormal returns (CAARs) around the announcement depends on the managerial equity stake prior to the public-to-private transaction. In transactions when the pre-buyout management stake is at least 50%, the CAARs are 20% higher than in transactions in which with the management owns smaller stakes. However, they do not find a significant difference in the premiums offered to these two types of companies. This implies a larger probability of success for firms with strong initial managerial control (more than 50%). Abnormal returns occurring at the announcement of the buyout also depend on the post-transaction equity stake held by the manager. DeAngelo et al. show that the market reaction to the MBO announcement is higher when the management becomes the sole owner than when control is shared with a third party.

Lehn and Poulsen (1989) cross-sectionally analyze the average premiums by regressing them against a set of explanatory variables that proxy for free cash flows, growth prospects, size and potential tax savings. They find that the premiums depend on the level of free cash flows. When partitioning the sample based on managerial ownership, the free cash flow variable proves insignificant for equity stakes above the median.

This is consistent with the free cash flow hypothesis, as the agency costs are higher in the firms with low levels of managerial ownership. Kieschnick (1998) revisits the Lehn and Poulsen sample, and reaches opposite conclusions after accounting for outliers and redefining the variables. His results are not supportive of the free cash flow hypothesis.

With respect to the effects of managerial ownership, Frankfurter and Gunay (1992) demonstrate that the incentive realignment hypothesis is upheld. The level of insiders' net divestment is a significantly positive determinant of abnormal returns. This confirms that the incentive realignment hypothesis does not hold for pre-transaction firms with large managerial ownership. Halpern et al. (1999) confirms this finding. They cross-sectionally analyze the buyout premiums and reveal a U-shaped relation between managerial equity ownership and buyout premiums for poorly performing firms. This evidence shows that for firms where managers already own a large equity stake, the reunification of ownership and control is not the prime motive to go private.

Travlos and Cornett (1993) jointly test the hypotheses about taxation, bondholder wealth transfers, asymmetric information, transaction costs and agency costs in a cross-sectional analysis. The industry-adjusted Price-Earnings ratio is deemed to be an inverse proxy for agency costs and proves to be a statistically significant variable negatively influencing abnormal returns. Consistent with DeAngelo et al. (1984), the authors find that the stock price reaction to MBO announcements is significantly higher than for third-party transactions (MBIs and IBOs).

Renneboog, Simons and Wright (2006) calculate both the cumulative abnormal return and the average premium of UK public-to-private transactions taking place in from 1997-2003. While in their paper the incentive re-alignment hypothesis is supported, the pre-transaction free cash flow has no impact, as also previously observed in other UK-oriented work. However, the control hypothesis is a significant determinant of the shareholder wealth effects of going private, an effect which is especially strong in the presence of corporations as monitors. Andres et al. (2003) perform a similar study for a sample of European public-to-private transactions, but only find significant support for the control hypothesis

#### *Hypotheses related to wealth transfers*

In relation to the bondholder wealth transfer hypothesis, Marais et al. (1989) report a non-significant correlation between pre-buyout debt ratios and abnormal returns. A significant positive relation would have confirmed that in firms with high pre-transaction debt ratios, the bondholder wealth transfer could contribute to the premiums paid to shareholders to take the firm private. Warga and Welch (1993) show that

in going private transactions, an increase of one dollar in the firm market value of equity is associated with a five cents decrease in the overall value of debt. Likewise, Asquith and Wizman (1990) show that a bondholder wealth transfer to the shareholders exists but is small. Their estimate of abnormal losses to bondholders is only 3.2% of the gains made by shareholders. This evidence confirms that the bondholder wealth transfer hypothesis cannot be rejected, but also that bondholder expropriation cannot be a principal source of wealth gains to shareholders in public-to-private transactions.

Andres et al. (2003) are the first to test for the employee wealth transfer hypothesis, but find no support for it.

#### *Tax benefit hypothesis*

Kaplan (1989b) argues that tax benefits constitute an important source of wealth gains in going-private transactions. His models show that 76% of the total tax shield is paid out as a premium to those investors selling out. This supports his claim that predictable potential tax benefits are appropriable by pre-transaction investors in a competitive market for corporate control. Lehn and Poulsen (1989) find that the potential for tax savings is not a significant determinant in the cross-sectional variation of premiums. Again, Kieschnick (1998) reaches an opposite conclusion and supports Kaplan's (1989b) claim that potential tax savings and firm size have a positive impact on the wealth gains in LBOs. For the UK, Renneboog, Simons and Wright (2006) reject the tax benefit hypothesis. Both Dicker (1990) and Weir et al. (2005a) point out that the tax advantages of financing firms with debt are smaller in the UK than in the US.

#### *Transaction costs hypothesis*

Travlos and Cornett (1993) are the first to test the hypothesis of transaction costs savings by employing annual costs of listing according to NYSE and AMEX fee schedules (scaled by the market value of equity), but conclude that this hypothesis is not upheld, perhaps reflecting the fact that the true costs of a stock market quotation are much higher than just the listing costs. Renneboog, Simons and Wright (2006) do show some support for the transaction costs hypothesis: the savings realized by the direct and indirect costs of a listing significantly contribute to the shareholder wealth effects from going private.

#### *Undervaluation hypothesis*

Harlow and Howe (1993) find that going-private premiums paid by third parties are on average 11% higher than the premiums paid by management teams, with the typical MBO premium being 39%. The

correlation of these premiums with various measures of insider trading is only significant for the MBO subgroup. This suggests that insider net buying before an MBO conveys favorable information to the market and constitutes some support to the undervaluation hypothesis. Kaestner and Liu (1996) reach similar conclusions: MBO-related abnormal buying prior to the public-to-private announcement is not driven by free cash flows or past tax liabilities but by superior knowledge about the true value of the firm.

Goh, Gombola, Liu and Chou (2002) investigate analysts' earnings forecast revisions at the public-to-private announcement. They report a significant upward revision of earnings forecasts for institutional buyins, but find that this phenomenon is significantly less pronounced for MBOs. They examine the undervaluation hypothesis by analyzing the relationship between abnormal analysts' forecast revisions<sup>17</sup> following a going-private announcement, and abnormal returns at the announcement of the transaction. Whereas they find no significant support for the free cash flow hypothesis or any effect induced by a change in leverage, the authors show that abnormal revisions of analysts' forecast earnings are positively related to the abnormal returns of the public-to-private announcement. These findings convince the authors that going-private announcements indeed convey favorable information about future earnings. In contrast, Lee (1992) reports that there are no sustained shareholder wealth increases from MBO announcements that are subsequently withdrawn. This result suggests that going-private announcements do *not* convey favorable information on future earnings.

Renneboog, Simons and Wright (2006) find strong support for the undervaluation hypothesis; past share price performance is a significant determinant of shareholder wealth gains for MBOs and IBOs, confirming that the latter are best placed to exploit undervaluation due to informational asymmetries. Andres et al. (2003) find a significantly negative relation between the target's share price development and the level of the abnormal returns. This also implies support for the undervaluation hypothesis.

### *Bidder Competition*

Public-to-private transactions with multiple bidders are associated with higher premiums. For instance, Lowenstein (1985) calculates that the premiums paid to shareholders in MBO transactions involving three or more competing bidders were on average 19% higher than the premiums paid in cases with a single bidder. Amihud (1989) confirms his findings: 9 out of 15 of the largest biggest LBO transactions over the period 1983-86 received competing bids and the final premium paid was 52.2% compared to 30.7% for cases

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<sup>17</sup> Goh et al. (2002) calculate the abnormal revision of analyst forecast earnings subsequent to a going-private transaction by using the methodology proposed by Brous (1992). Essentially, the latter constructs the abnormal revision of analysts' forecasts by comparing analysts' revisions of forecasts after the going-private announcement to the expected revisions (based on an event-study methodology), standardized by the stock price.

without bidder competition. Similarly, Easterwood, Singer, Seth and Lang (1994) show that the premium in a multiple bidder process is about 17% higher.

The interpretation of these higher premiums in contested LBOs is not straightforward and is empirically insufficiently unexplored. While the empirical literature usually attributes higher premiums to the mechanics of the competitive process (e.g. Lowenstein (1985) and Amihud (1989)), further nuance is needed. Indeed, higher premiums in contested bids may also occur due to private equity overpayment resulting from irrationality or “deal fever” (see e.g. Andres et al. 2003). Alternatively though, contested LBOs may signal severe undervaluation, in which case a higher premium is justified.

#### *Empirical results on divisional buyouts*

Studies on divisional buyouts focus on the effects on parent shareholders. Bae and Jo (2002) and Hite and Vetsuypens (1989) argue that there are considerable differences between divisional and whole-firm buyouts. It is expected that divisional buyouts suffer less from the absence of arm’s length bargaining, because the parent company’s management negotiates with the divisional buyout team. Therefore, a conflict-prone role of managers in MBOs is likely not to arise. For a sample of 65 MBO divestments over the period 1984-89, Briston, Saadouni, Mallin and Coutts (1992) find negative returns of -1.79% to parent shareholders (measured over a [-10,10] window and significant at the 1% level). Apparently, divisional managers still succeed in negotiating a relatively low price for the assets they buy from the parent company. This contradicts the findings of US divisional MBOs (Muscarella and Vetsuypens (1990)) in which the parent shareholders do not lose, on average.

[Insert Table 7 about here]

#### *4.2.3. Synthesis: Impact*

Table 7 summarizes this second strand of the literature. First, we conclude that the evidence on the undervaluation hypothesis is not clear-cut. Second, bondholder wealth transfers seem to exist but are only playing a very limited role in the wealth gains of pre-buyout shareholders. Other wealth transfer (or expropriation) hypotheses have not been tested directly (as is the takeover defense hypothesis). Third, the evidence on shareholder-related agency costs hypotheses, more specifically the incentive realignment and free cash flow hypotheses, is mixed. There is evidence that the incentive realignment hypothesis is only valid for firms where pre-transaction managers hold small equity stakes. Fourth, the increased tax shields from going

private might be a source of wealth gains, but this evidence is mixed. Fifth, remarkable is that most of the evidence in this strand of the literature – with the exception of a paper on UK divisional buyouts and another on the second public-to-private wave - comes from the US. This calls for systematic research on this strand from other parts of the world.

### ***4.3 Third Strand: Process***

So far, we have discussed the empirical results of the determinants of the firm-specific probability of going private, and how much acquirers generally pay in order to obtain the required proportion of shares to delist the company. After these two initial phases, the firm starts a new life away from public scrutiny and usually somewhat disappears from the public forum. Fox and Marcus (1992) remark that it is imperative that these firms do not vanish from the academic radar. After all, the scientific debate about the real role of leveraged going private transactions, being either more efficient organizational forms (Jensen (1989)) or simply vehicles to gain tax benefits (e.g. Lowenstein (1985)), cannot possibly be resolved without a detailed study of the post-transaction performance. After the acquiring party has paid a premium to take the company private, the process by which it recovers these out-of-pocket costs and puts the resources under its control to a more valuable use, can result in interesting insights into the real sources of wealth gains from buyouts.

#### *4.3.1. Methodological issues*

The empirical research in this strand is based on two distinct research methods: while most researchers have employed large-sample quantitative studies, some have successfully used case studies and interviews/surveys to detect the sources in wealth creation from going private.

Quantitative studies have employed samples ranging from around 30 (Liebeskind et al. (1992)) up to 250 observations (Lichtenberg and Siegel (1990)). Using performance data, they deploy a variety of econometric methodologies (univariate and multivariate) to assess the (sources of) changes in performance. The majority of the studies compares the pre- and post-LBO performance. In addition, a substantial number of papers focuses on reverse LBOs (secondary IPOs), and compares the performance over time of the public, the private and the renewed public status of the firms. Fox and Marcus (1992) and Wright et al. (1995) argue that the reverse LBO performance studies should not be used to make inferences about going private in general, as these studies use samples biased towards those LBOs that return to public hands, which are likely to be the strongest performers.

In general, quantitative studies suffer from three econometric challenges. First, the data availability is a problematic as private firms do not have to comply with detailed disclosure of financial information. Furthermore, the available information of private firms induces a size bias because larger private firms still release more information than smaller firms. Second, Smart and Waldfogel (1994) and Palepu (1990) claim that quantitative studies mistakenly compare post-transaction performance to pre-transaction performance: post-transaction performance should be compared to pre-transaction *expected* performance in order to ascertain whether or not performance improvements are attributable to the LBO process. A third econometric problem is that some papers only match LBO firms with non-LBO firms without controlling for industry and year effects.

A small number of studies employ the case study methodology. Yin (1989) argues that case studies can provide us with more direct answers through their ability to deal with research settings with a large number of variables, or where variables tend to be qualitative. Case studies can therefore better explore the organizational links between going private and performance improvements (Baker and Wruck (1989)).

#### *4.3.2. Empirical results*

In this section, we describe the most important papers from this large body of empirical work on the post-buyout wealth creation process. We categorize the papers according to the research methodology employed. The quantitative studies are subdivided into two sections for: (i) the firms under private ownership and (ii) the reverse LBOs. We refer to interesting case studies in the third subsection and we discuss the effect of financial distress in buyouts in the fourth.

##### *Empirical results of quantitative studies: firms under private ownership*

Kaplan (1989a) analyzes the post-transaction operating performance of 48 MBOs that took place during 1980-86. He finds that industry-adjusted operating income does not increase during the first two years subsequent to the buyout, but grows by 24.1% in the third year. When one controls these findings for divestitures, the bought-out firms even strongly outperform their public counterparts in every post-buyout year. Kaplan also documents that industry-adjusted capital expenditures fall significantly after the buyout, which is in line with the curbing of management's 'empire-building tendencies' provided that pre-buyout firms had large levels of free cash flows. However, in bought-out firms that do not generate high free cash flow, restricting capital expenditures may signal an underinvestment problem induced by the debt burden. Both Smith (1990) and Kaplan (1989a) show evidence that the post-buyout operating performance (median

operating cash flow per employee and per dollar of asset value) increases more than the industry median from the year prior to the transaction to two years after the transaction. Tighter working capital management seems to be a small contributing factor, while a reduction of spending on discretionary items or capital expenditures cannot explain the improved operating performance. Smart and Waldfogel (1994) revisit Kaplan's (1989a) sample and compare performance against pre-buyout *expected* performance<sup>18</sup>, but still show similarly strong operating performance improvements.

Muscarella and Vetsuypens (1990) perform a similar exercise for reverse LBOs both on the whole-firm and on the divisional level. Restructuring activities explain the strong improvements in efficiency after an MBO. They argue that the premium is more likely to capture the efficiency improvements in divisional buyouts than in whole-firm buyouts. The reason is that there is less asymmetric information in relation to a divisional MBO than in a whole-firm going-private transaction because in the former case the negotiating management teams are both insiders. Efficiency gains reflect real operating gains; the accounting variables show that these improvements result mostly from cost cutting, and not from the generation of more revenues. Divisional buyouts indeed appear to have more pronounced efficiency gains, which gives more support to the undervaluation hypothesis for whole-firm MBOs. In contrast, neither Kaplan (1989a) nor Smith (1990) support the undervaluation hypothesis. The former author observes that pre-MBO financial projections, upon which the offer price will be based, systematically overstate the future realizations. Smith (1990) observes that cash flows tend not to increase after a failed buyout proposal. Post-buyout cash-generative characteristics of defensive and non-defensive transactions do not differ, which undermines the undervaluation hypothesis that MBOs are motivated by private information held by the management.

The three papers discussed above also elaborate on the effects of a public-to-private transaction on the firm's employees. When controlling for reduced employment resulting from post-transaction divestitures, Kaplan (1989a) reports that median employment actually rises by 0.9%. Muscarella and Vetsuypens (1990) report that going-private transactions do not cause layoffs. These results are confirmed by Smith (1990) who also notes that the number of employees from the year before the MBO until the year after the deal grows more slowly than the industry average.

In another interesting study, Lichtenberg and Siegel (1990) investigate the consequences of MBOs on total factor productivity, by employing a sample of a thousand plants. Their main conclusion is that total

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<sup>18</sup> Due to conflicting past evidence on the appropriate measures, Smart and Waldfogel (1994) use two methodologies to calculate expected performance improvements before the announcement of the LBO. In the first, they make forecasts of the sales/income ratio by estimating a dynamic performance regression on the firm's annual performance history up to the year before the transaction. The second measure is the last expected income/sales improvement as predicted by analyst forecasts in Value Line before the LBO announcement.

factor productivity growth on the plant level increased by 8.3% above the industry mean over the three years following a going-private transaction. Also, MBOs experience higher mean productivity increases, while productivity increases for the fourth and fifth year after the deal are non-significant. Finally, the study documents that employment and compensation for blue-collar workers do not decline after a buyout, while white-collar workers do experience compensation and employment losses.

Liebeskind, Wiersema and Hansen (1992) investigate the incentive realignment hypothesis by testing if and how corporate restructuring affects the firm and its post-transaction strategy. Using a sample of 33 of the largest LBOs (1980-84), and a matched control sample of companies that remain public, they find that managers of going-private firms resort to more downsizing of their businesses and to expanding production lines less. However, the business mix of the corporate portfolios does not change. Apparently, the incentive realignment following the buyout induces managers to pursue a focus strategy and to forego excess growth.

Jones (1992) focuses on the use of accounting control systems in the new firm after going private. He finds that an improvement in operational efficiency was achieved through modifications of the organizational structure. Going private led to improved planning techniques that match the organizational context better. Zahra (1995) uses interview data to uncover the role of entrepreneurship in performance improvements in the post-buyout process for LBOs of non-listed firms. He documents that, even with a high debt burden, innovation and risk taking is not stifled. Post-buyout performance improvements arise from an increased emphasis on commercialization and R&D alliances, as well as from an improved quality of the R&D function and intensified venturing activities. Without establishing a statistical relationship, Zahra (1995:241) explains that this revamped entrepreneurial spirit could be the result of reduced shareholder-related agency costs.

An important nuance to the positive view sketched in some of these papers is given by Kaplan and Stein (1993). They point out that US public-to-private transactions effectuated in the latter half of the 1980s were pricier and riskier, which eroded the returns of taking a company private. Long and Ravenscraft (1993) confirm that the performance gains for LBOs and MBOs completed in the latter half of the 1980s decline, but performance and efficiency improvements remain substantial. For instance, Opler (1992) calculate that for the 20 largest transactions in the 1985-90 period, operating profits per dollar of sales rise by 11.6% on an industry-corrected basis. Per employee, this increase is even as high as 40.3%. In addition, leveraged going-private transactions do not seem to decrease spending on R&D.

*Empirical results of quantitative studies: reverse LBOs*

Some papers have focused on the phenomenon of reverse LBOs. DeGeorge and Zeckhauser (1993) model that asymmetric information, debt overhang and behavioral problems can create a pattern of superior performance before the reverse LBO (the private stage), and disappointing results afterwards (the public stage). Their empirical study of 21 reverse LBOs between 1983 and 1987 confirms their hypothesis.

Holthausen and Larcker (1996) expand this study by analyzing the value drivers of the accounting performance for 90 reverse LBOs (1983-88). They find that, although leverage and insider equity ownership are reduced in reverse LBOs, both remain high relative to the industry-adjusted numbers of quoted firms. Thus, they argue that reverse LBOs are in fact hybrid organizations because they retain some of the characteristics of an LBO after the flotation. Their regression analysis strongly upholds the incentive realignment hypothesis. For at least four years after a secondary IPO, these firms outperform their industries on an accounting basis performance but experience a performance decline afterwards (which Bruton, Keels and Scifres (2002) confirm). Holthausen and Larcker (1996) speculate on the causes for this lagged effect of performance reduction: they believe that reverse LBOs gradually lose their typical LBO characteristics and evolve towards the typical firm of the industry. They also find that capital expenditures increase and R&D expenditures decrease after the IPO, but that reverse LBO firms seem to be more efficient with respect to working capital requirements. Like DeGeorge and Zeckhauser (1993) and Mian and Rosenfeld (1993), they do not find stock price underperformance, until at least four years after flotation. Apparently, reverse LBOs are rationally priced and do not suffer from long-term underperformance (Ritter (1991)).

*Case study results*

Some interesting clinical studies have been published to explore the organizational links between going private and performance improvements. Investigating the MBO at O.M. Scott & Sons Company, Baker and Wruck (1989) confirm the results of large sample studies that high leverage and managerial equity ownership lead to improved incentives and, subsequently, to improved performance. Of equal importance in terms of their contribution to performance however, are the restrictions imposed by debt covenants, the emphasis on managerial compensation (and its incentives), the decentralization of decision making, and the relation Scott managers had with the third-party buyout team of Clayton & Dubilier partners. Baker and Wruck (1989) conclude that the performance improvements were related to some specific organizational characteristics of leveraged buyouts, and not just because these improvements were not made before when the firm was still in public hands.

Denis (1994) provides evidence that looks at least as convincing by comparing a leveraged recapitalization (Kroger Co.) with an LBO (Safeway Stores Inc.). He finds that, although both firms dramatically increase leverage, the improved managerial equity ownership, boardroom change, monitoring by an LBO specialist firm, and executive compensation associated with the LBO are responsible for the more productive cash generation in Safeway Stores. Still, Denis acknowledges that the leveraged recapitalization did generate performance improvements. This paper suggests that an LBO is not only about leveraging the businesses; it is a completely different organizational form with its own value improving characteristics. This implies that not all, but part of the gains from going private can be attributed to the new organizational form of an LBO.

Behavioral issues like the social and political consequences of changes in ownership on the motivation of managers are examined by Green (1992) in 8 case studies of UK divisional MBOs. Although managers seem to work harder and are more entrepreneurial in the investigated MBOs, the prospect of financial rewards did not appear to be the main motivator. Rather, contrary to beliefs commonly held by financial economists, it was the changed working conditions that allowed them to do their work more effectively. In fact, this finding casts doubt on the incentive realignment hypothesis, as it means that innovativeness drives ownership concentration, rather than the other way around. Indeed, Bruining and Wright (2002) find that management buyouts of non-listed firms occur mostly in firms where entrepreneurial opportunities exist. Clearly, these case studies conform the claim that MBOs are more than just a vehicle to improve efficiency in a mature-sector company (Wright, Hoskissen, Busenitz and Dial (2000)).

Specifically for management buyins of unquoted UK firms, Robbie and Wright (1995) find that all too often, MBI teams cannot adequately deal with problems that occur post-transaction. Such problems were not anticipated in the due diligence examination but substantially impede the execution of a new strategy. The evidence that there is a lack of accurate information turns out to be a major cause of problems in third-party transactions. Additionally, Robbie and Wright (1995) find that the success of an MBI requires that the incentive package should take the context of the transaction into consideration, and leave sufficient flexibility from the side of capital suppliers and monitors to respond to emerging problems. This supports the incentive realignment hypothesis, while underlining the importance of the improved monitoring function of LBOs.

### *Financial distress of LBOs*

Although there are case studies on individual going-private firms in trouble (see e.g. Bruner and Eades (1992) and Wruck (1991)) as well as some large sample studies (e.g. Andrade and Kaplan (1998) and Easterwood (1998)), research directly testing the effects of recessionary conditions is scarce. Nevertheless, Wright, Wilson, Robbie and Ennew (1996) find that the probability of failure of buyouts and buyins of unquoted companies is reduced due to the existence of managerial incentive plans and well-timed corporate restructuring. Consistent with Bruner and Eades (1992), they find that excessive leverage is a strong predictor for failure when macro-economic conditions turn sour. Denis and Denis (1995) confirm that, for a sample of 29 leveraged recapitalizations completed between 1985 and 1988, regulatory developments as well as a recession (or industry-wide downturns) strongly negatively influence the survival probability.

[Insert Table 8 about here]

#### *4.3.3. Synthesis: Process*

Table 8 summarizes the main results discussed in this section. We conclude that the empirical research has confirmed that the post-transaction performance improvements are in line with those anticipated at the announcement of a going-private transaction. The causes of the performance and efficiency improvements are primarily the organizational structure of the leveraged buyout (characterized by high leverage and strong (managerial) ownership concentration). Almost unambiguously, the studies in this strand of the literature support the role of incentive realignment in the post-buyout value creating processes, while the employee wealth transfer hypothesis is unanimously discarded. While the undervaluation hypothesis remains disputed, the free cash flow theory appears to find more support in this strand of the literature than in others. Nevertheless, the empirical work on post-buyout processes seems far from complete, and will require more studies of long-run performance.

#### **4.4 Fourth strand: Duration**

Jensen (1989) argues that LBO firms constitute a superior organizational form to publicly held firms, due to the better incentives they offer to managers and monitors. Management incentives relating pay to performance, decentralization of control, high leverage and other bonding or precommitment agreements, combined with reputational concerns of the LBO sponsors, reduce the agency cost problems inherent to the structure of the public corporation in low-growth industries. Rappaport (1990) contests Jensen's (1989) proclaimed superiority of the LBO organization to public corporations, arguing that the latter are 'vibrant, dynamic institutions - capable of long periods of underperformance, to be sure, but also fully capable of self-

correction'. In short, Kaplan (1991) refers to Rappaport's (1990) view of 'going-private as a shock therapy'. After the necessary changes have been brought about under highly-leveraged private ownership, the costs of inflexibility, illiquidity and the need of risk diversification will exceed the benefits of the LBO as an organizational form, with a return to public ownership as an inevitable consequence. Clearly, in this view, the time horizon associated with the role allocated to going private will generally be shorter than the 'significant period of time' Jensen (1989) deems necessary.

Kaplan (1991) highlights the importance of evidence on LBO-duration in the discussion on the role of public-to-private transactions, the reasons why they occur, and the sources of wealth gains that motivate going-private transactions. Therefore, this section will review the empirical work on the duration of private ownership after a public-to-private transaction.

#### *4.4.1. Methodological issues*

To measure the duration of the private status of a firm (from LBO to secondary IPO), hazard functions are estimated. These models are designed to measure the 'survival time'. There are two major reasons why duration analysis of LBOs cannot be addressed via straightforward multiple regression techniques: First, the dependent variable (duration of private status) is most likely not normally distributed; it usually follows an exponential or Weibull distribution. Second, there is the problem of censoring. A Cox's proportional hazard model is the most general of the regression models because it is not based on any assumptions concerning the nature or shape of the underlying survival distribution. The model assumes that the underlying hazard rate (rather than survival time) is a function of the independent variables (covariates) such that no assumptions are made about the nature or shape of the hazard function. Thus, in a sense, Cox's regression model is a nonparametric method. In order to use a hazard model a minimum number of 30 observations is needed, which is difficult to find in some regions (e.g. Europe). Furthermore, in past Anglo-American studies, the attrition bias is not accounted for in the estimation (some LBO firms go bankrupt after the delisting such that a reverse LBO is no option). Therefore, the correct duration of leveraged buyouts is based on the probability of a reversion to public ownership conditional on corporate survival in the phase with private ownership.

#### *4.4.2. Empirical results*

Kaplan (1991) was the first to formally address LBO duration and finds that companies that return to public ownership do so after a median time in private status of only 2.63 years. For his sample of 183 large going-

private transactions from 1979-86, he finds an unconditional median life of 6.82 years for whole-firm and divisional LBOs. Using hazard functions, Kaplan (1991) observes constant duration dependence in years 2 through 5, and negative duration dependence<sup>19</sup> beyond this. This means that the likelihood of returning to public ownership is largest in years 2 to 5, while this likelihood decreases as time under private ownership increases beyond this period. This result leaves room for both the existence of Rappaport's (1990) arguments about the shock therapy of LBOs, as well as for Jensen's (1989) idea that firms that go private will remain private for longer periods of time due to the advantages of incentive realignment. Consistent with Kaplan (1991), Holthausen and Larcker (1996) confirm that LBOs reversing to public ownership retain some of the characteristics they exhibited under private ownership.

Van de Gucht and Moore (1998) also explore the duration of the private status of LBOs, but do not unambiguously support Kaplan's (1991) results. Using a sample of 343 whole-firm and divisional buyouts from 1980-92, they confirm the results found by Kaplan (1991 and 1993) on the median conditional and unconditional duration of the private status. However, employing a split population hazard model that does not implicitly assume that all firms that went private eventually return to public ownership (as Kaplan (1991) does), they document a positive duration dependence until the seventh year, and negative dependence beyond that year. Divisional buyouts are found not to be significantly different from whole-firm going-private transactions in terms of their duration. Interestingly, the climate of the financial markets significantly influences the reversion moment.

Wright et al. (1995) investigate the duration that buyouts and buyins stay private for a sample of 182 UK firms for 1983-86. This sample includes public-to-private transactions as well as buyouts of non-quoted firms, and both divisional and whole-firm buyouts and buyins. This study shows that – in line with the US findings - the hazard coefficient increases strongly from approximately 3 to 6 years after the buyout, after which a negative duration dependence persists. Survivor analysis estimations show that size is a significantly negative determinant of the duration in buyouts.

Quantitative analysis is combined with three case studies in Wright, Robbie, Thompson and Starkey (1994) who investigate the influence of a whole array of management applications on the duration of a firm's private status. Their evidence suggests that ownership, financial and market-related factors are the prime factors explaining the duration of the buyout. Third party financial institutions are associated with the propensity to exit fairly rapidly after a transaction, as these institutions desire a return within a pre-established time frame. If the management of the buyout firm owns a relatively small fraction of the equity, it will be not

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<sup>19</sup> Duration dependence is the extent to which the conditional hazard of the event of interest is increasing or decreasing over time (for a general review see Kiefer (1988) or Heckman and Singer (1984)).

able to extend the private status of the firm for long. Finally, the study documents that environmental dynamism and competitive pressure are important determinants of buyout longevity.

Support for the contradicting claims of both Rappaport (1990) and Jensen (1989) (an LBO is needed for a short time period as a shock therapy versus an LBO is an efficient organizational form even in the long run) is given by Halpern et al. (1999). The probability of remaining private is positively related to managerial shareholdings. A subsample of LBOs remains private only for a short time; these were usually – prior to the buyout - poorly performing firms with low managerial equity holdings. After restructuring the operations subsequent to the buyout, these firms regain a stock exchange quotation. Another subsample (firms with ex ante high managerial shareholdings) seems to consider that the private status is the efficient form of organization and remain delisted.

[Insert Table 9 about here]

#### *4.4.3. Synthesis: Duration*

Table 9 gives an overview of the main results of the papers discussed in this section and shows that there is a dichotomy between the firms that go private. Some firms seem to use the organizational form of a going-private transaction as a temporary shock therapy to enable them to restructure efficiently, while others regard the LBO as a sustainable superior organizational form. The decision to organize a reverse LBO (or a secondary initial public offering) depends both on firm-specific characteristics and environmental factors.

### **5. International public-to-private trends**

An abundant body of empirical literature has documented the drivers of waves in merger and acquisition activity (see e.g., Martynova and Renneboog (2005), Andrade et al. (2001), Auster and Sirower (2002) and Golbe and White (1993)). Likewise, LBO activity seems to occur in cycles (Smit and Van Den Berg (2006)) and the following two factors seem to be the main determinants. First, the opportunities for value creation from public-to-private deals vary over time, which tunes the demand for private-equity capital. The extent to which the supply of private-equity capital can meet this demand, depends on the economics of the private-equity model in a given region or market (Fenn et al. (1995)). The economics are determined by e.g. the political economy and the general acceptance of LBOs as financial transactions, the capital market conditions, and the legal/fiscal infrastructure. In this section, the occurrence of the LBO waves of the 1980s and 1990s is

explained by the arguments on the supply and demand for private-equity capital made above<sup>20</sup>. Figures 2, 3 and 4 show the evolution of public-to-private volumes and values for the period 1979-2003 for the US, the UK and Continental Europe.

[Insert Figures 2, 3 and 4 about here]

### **5.1 The LBO wave of the 1980s**

The US economy of the 1980s was characterized by a large number of (hostile) corporate takeovers and restructuring. Mitchell and Mulherin (1996) argue that 57% of US quoted firms were takeover targets or were restructured between 1982 and 1989. As some mergers failed and substantial excess capacity was created, the M&A wave also triggered a significant increase in LBO activity. Going private transactions facilitated the reduction in excess capacity that ‘complacent corporate America’ was unable to solve itself (Jensen (1991)). This alludes to agency cost-related explanations of wealth gains from LBOs.

Shleifer and Vishny (1990) argue that LBOs enabled the deregulation and resulting deconglomeration of the large corporate groups created in the 1960s and 1970s. The development of the high-yield or junk bond market by Drexel Burnham Lambert’s Michael Milken<sup>21</sup> improved access to acquisition finance to pursue these going-private transactions (for a review see Yago (1990) and Kelley and Scott (1993)). In addition, hostile going-private transactions were facilitated by the 1982 Supreme Court reduction of state anti-takeover laws (as pointed out by Pound (1987), Jarrell and Poulsen (1987), or Jarrell (1992)). As a result, many of these transactions were also motivated by the takeover defense hypothesis as described above.

In the first half of the 1980s, LBOs performed their role of catalyzing corporate restructuring so well that Jensen (1989) predicted the eclipse of the public corporation. However, the culmination of the LBO wave in the latter half of the 1980s was associated with many bankruptcies (see Kaplan and Stein (1993) and Jensen (1991)) and evoked fierce public and political resistance (Shleifer and Vishny (1991)). The LBO wave of the 1980s dried up as a consequence of the resulting re-enactment of state anti-takeover legislation<sup>22</sup>, the political

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<sup>20</sup> Jensen (1991) and Fenn et al. (1995) provide an inclusive account of the US 1980s LBO wave only, while Holmstrom and Kaplan (2001) and Jin and Wang (2002) report on the 1980s and 1990s. Wright et al. (2006) discuss the UK and Continental European buyout market at large.

<sup>21</sup> For an account of Drexel’s role in the rise and fall of the LBO market in the second half of the 1980s, see e.g., Scott (2000).

<sup>22</sup> Most influential was the re-enactment of the Delaware Merger Moratorium Law, prohibiting hostile suitors from merging their acquisition vehicle with the target company for at least three years after acquiring a majority stake lower than 85%. As a result of the re-enactment, corporations sought to place 15% of common shares with befriended parties to fend off hostile suitors. The re-enactment of this law is important, because the majority of US medium-large companies is incorporated in Delaware (see Jarrell (1992) for a detailed account).

pressure against high leverage<sup>23</sup>, the crisis in the high yield bond market<sup>24</sup>, and a credit crunch (see Holmstrom and Kaplan (2001) and Jensen (1991) for a review).

The phenomenon of public-to-private transactions quickly traversed the Atlantic, with the first UK MBO (Haden Maclellan Holdings Plc) being undertaken in 1985. Although smaller in scale, the activity in the UK going-private market kept pace with that of the US and the first wave also peaked in 1989. Wealth gains from LBOs in the 1980s in the UK appear similar to those in the US. Public controversy<sup>25</sup> about the increased hostility in going-private transactions induced the Takeover Panel<sup>26</sup> to adopt new rules regulating the behavior and procedures in going-private transactions (Wright, Thompson, Chiplin and Robbie (1991)). The drop in deals after 1989 made it seem as if the going-private transaction had already outlived its short life. Public-to-private transactions on the European Continent during the 1980s followed the same pattern as in the US/UK, but volume and value were insignificant in relation to the Continent's GDP. We are not aware of any academic work on European public-to-private transactions of the 1980s.

## 5.2 The LBO wave of the 1990s

### 5.2.1. Anglo-American trends: US and UK

Although favorable conditions (with the exception of the anti-takeover measures) were restored in the US in the early 1990s, going-private activity did not take off. Kaplan (1997) and Holmstrom and Kaplan (2001) argue that the 1980-style deals were not necessary anymore. The reason is that, on the whole, corporations themselves seem to have reduced the agency costs between shareholders and managers by realigning incentives and improving shareholder control. The subsequent declined rate of hostility against corporations (Holmstrom and Kaplan (2001)) has also reduced the scope of MBOs as a defensive mechanism. Altogether, this has eliminated the most important sources of wealth gains of US LBOs from the 1980s.

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<sup>23</sup> For example, the regulator restricted investment by insurance companies and savings and loans institutions in commercial bonds and junk bonds to LBOs (Holmstrom and Kaplan ((2001)). Scott (2000) even claims that Michael Milken became a "political prisoner" as a result of envy and political backlash against the high yield bond market.

<sup>24</sup> The crisis in the junk bond market was largely due to the limitations imposed on Drexel Burnham Lambert according to Jensen (1991).

<sup>25</sup> Part of the controversy came from two hostile MBIs in 1989 which were among the first acts of hostility in the UK public-to-private market. In particular, it was the £ 629 million Magnet Plc deal that was unacceptable to investors. Institutional investors took the lead in the public protest against the MBO attempt of the Magnet management team, which was accused of depriving shareholders of the chance to invest over the long term.

<sup>26</sup> The Panel on Takeovers and Mergers ("the Takeover Panel") is the regulatory body which administers the City Code on Takeovers and Mergers ("The Code"). Its primary objective is to ensure equality of treatment and opportunity for all shareholders in takeover bids (see [www.thetakeoverpanel.org.uk](http://www.thetakeoverpanel.org.uk)).

Only since 1997, a rise in US going-private activity occurred with a total value of USD 65 billion (1997-2002) although this LBO wave does not surpass<sup>27</sup> – in value terms – the peak of the end of the 1980s (see Figure 2). Block (2004) surveys 40% of the firms going private over the period 2001 to 2003 and finds that the main reasons for going private are: (i) pressure by the market on top management to increase corporate performance, (ii) lack of analyst coverage and market liquidity, and (iii) the threat of being delisted by Nasdaq. This seems to support the undervaluation hypothesis. More importantly though, the implementation of the Sarbanes-Oxley Act on corporate governance substantially increases the costs of a listing (e.g. Coustan et al. (2004), Perino (2004), Ribstein (2003)). This extra regulatory burden has a fixed cost component that falls disproportionately on the smaller quoted companies (Holmstrom and Kaplan (1993) and Engel et al. (2004)). This rise in the costs of a stock listing (and the decreasing advantage of being public) appears to be a main reason for small US companies to go private from the late 1990s onwards (Engel et al. (2004), Carney (2005), and Kamar et al. (2006)). This provides strong support for the transaction cost hypothesis of wealth gains for LBOs.

As in the US, financial backers in the UK were equally unprepared to take any risks from 1991 until 1996, which resulted in a dormant public-to-private market. Nevertheless, Figure 3 shows that a new wave of going-private transactions started in 1997. Over the period 1997-2003, 211 public-to-private deals were completed with a total value of GBP 30 billion.

Explanations for the second going-private wave at the end of the 1990s generally emphasize the increased confidence of private-equity and debt financiers on important issues such as access to key information, due diligence, management support, target shareholder support (e.g. through irrevocable undertakings) and the expectation that 100% of the shares can be acquired (e.g. through squeeze-out provisions<sup>28</sup>) (CMBOR (2002) and Ashurst, Morris and Crisp (2002)). Also, innovative techniques such as inducement fees and ‘hard’ exclusivity agreements have facilitated the reduction of risks in going-private transactions (Davis and Day (1998)). Arguably, these changes have improved the economics of the private-equity model substantially.

On the demand for private-equity capital, anecdotal evidence suggests that the UK LBO wave of the late 1990s was triggered primarily by (temporarily) undervaluation which led to increased wealth gains in LBOs. Especially small firms turned to private-equity as institutional investors disregarded such small firms (Weir et

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<sup>27</sup> A tempering effect on the LBO activity arises from the fact that market conditions for companies (especially IT firms) have looked dim over recent years, which makes the sale of public equity a costly source of funds.

<sup>28</sup> A squeeze-out is described in section 429 of the UK Companies Act as follows: when 90% of the shares to which the takeover relates are acquired, the rest can be compulsory acquired.

al. (2005b: 949)). The consolidation in the fund management industry<sup>29</sup>, with bigger funds requiring higher minimum investment sizes and free float, is frequently mentioned as a reason for this institutional disinterest in small companies (Financial Times, Sept. 17, 1999 and CMBOR (2002)). For example, upon going private, Mr. Ainscough, CEO of Wainhomes Plc, said: “We feel unloved and unwanted. There has been a lack of investor appetite for small company shares over the last two or three years. This made it difficult to fund expansions and acquisitions through the issue of new shares, which is one of the main reasons for going public in the first place” (Financial Times, March 4, 1999). The resulting lack of liquidity and the need for expansion capital as a consequence of the limited availability of institutional equity finance depressed stock prices and drove small companies into the arms of private-equity firms to obtain funding (Financial Times, June 11, 2003).

The year 2000 was the year of the largest UK public-to-private deal ever, when MEPC Plc. went private through a £3.5 billion IBO. Activity eased slightly after the burst of the Dot.Com boom, caused by private-equity financiers worrying about a general decline in share prices, and the feasibility of exit strategies by means of a secondary initial public offering in periods of bearish equity markets (Financial Times, June 11, 2003). Figure 3 shows that, in volume terms, public-to-private activity recovered in 2003 and has remained at a steady level since.

### 5.2.2 Continental Europe trends

By comparing Figures 3 and 4, it can easily be observed that Continental Europe’s going-private activity has followed the patterns observed in the US/UK. Due to the virtual inexistence of systematic research into Continental European public-to-privates (with exception of Andres et al. (2003)), it remains hard to pinpoint the main sources of wealth gains of LBOs in such a diverse region. Nevertheless, it is remarkable that European going private activity substantially lags the US/UK. Wright et al. (2006) and CMBOR (2002) explain the historic drivers of this difference, but also show that Continental Europe is catching up in some important areas. Recent institutional and regulatory changes induce increasing LBO activity.

First, Continental Europe’s public capital markets are historically underdeveloped relative to the UK. One consequence is that a larger fraction of economic activity is privately financed, which reduces the number of potential targets and hence the scope of public-to-private transactions in corporate restructuring. In addition, public bond markets for small and mid-sized companies are virtually absent (Andres et al. (2003)), as are (junk) bond markets as a source of finance in LBOs. Sponsors therefore largely rely on banks for financing and experience less financial flexibility when arranging an LBO. Nevertheless, the emergence of

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<sup>29</sup> Consolidation in the fund management industry is largely the result of decreasing margins and the emergence of the Eurozone with one common currency (Pye (2006))

new debt instruments in Europe such as second-lien bonds and loans with lower covenant limitations and more attractive rates and maturities may further facilitate LBO finance (Wright et al. (2006)).

Second, a survey by CMBOR (2002) indicated that some Continental European countries lack the legal provisions to limit the risk of taking a public company private. With higher uncertainty and risk, fewer private-equity houses are prepared to back public-to-private transactions. This lack of an LBO infrastructure leads to lower levels of activity. For example, the high percentage of tendered shares necessary to take a corporation private has been an obstacle in many European countries, while UK private-equity investors avidly make use of squeeze out provisions (CMBOR (2002)). Nevertheless, since 2000, many European countries have introduced changes favorable for LBO activity (Goergen, Martynova and Renneboog (2005)). For instance, the transparency, shareholder protection, takeover rules and development of risk capital as provided for in Italy's recent Company Law reform allows for more flexibility in structuring private-equity deals and provide more reassurance to Italian going-private transactions (Ulissi (2000), Lovells (2003)). The new German Takeover Act provides a set of mandatory<sup>30</sup> rules that govern the time schedule of a going-private bid, foresee in an equal treatment of all shareholders of the same class, limit prolonged resistance by the target managing board, and introduce a squeeze-out rule at 95% of the equity (Goergen et al. (2005)).

Third, fiscal regimes in of some countries in Continental Europe were deemed "unhelpful" to perform public-to-private transactions in the CMBOR (2002) survey. For example, in Switzerland, the interest on leveraged buyouts cannot be offset against the company's earnings, and tax deductions are not possible in France if the 95% level of tendered shares is not achieved. But also on the fiscal front, Continental European countries are looking more favorably at LBOs. The German tax reform eliminated the corporate capital gains tax on the disposal of shares, which is expected to facilitate the sale of blocks of shares of listed firms to private-equity investors (Ashurst et al. (2002)). The French Minister of Economics declared that the French usury law<sup>31</sup> does not apply to corporate bonds, high yield issues, or debt instruments (Fried and Frank (2003)). This has eliminated the need for French borrowers in LBO transactions to set up new companies in jurisdictions other than the French. The new Dutch Fiscal Unity law of January 1, 2003, enables acquisition vehicles of private-equity investors to allocate the losses of high interest payments from acquisition-related leverage to the operations of the target.

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<sup>30</sup> Before the act was implemented, the adoption of takeover rules by the companies was voluntary rather than mandatory.

<sup>31</sup> The French usury law required (prior to January 2, 2003) lenders to disclose the effective global rate of a facility in place. This rate reflects the actual cost of borrowing for the borrower. If this rate exceeds the average interest rate on investments with similar risk by a third, it is a usurious rate, and a penalty will follow to at least repay the interest paid in excess by the borrower (see Lovells (2003)).

Fourth, the “culture” in the European Continent has historically been less favorable to LBOs. Especially in Mediterranean economies, family companies with a stock listing are a great source of pride and their management teams may not even deliberate to go private, even if necessary (CMBOR (2002)). While in 2006, the chairman of the German Social Democratic party compared foreign private-equity firms to “swarms of locusts sucking the substance” from German companies, Continental Europe’s manager’s attitude towards performing public-to-privates has improved over recent years (Wright et al. (2006)).

## 6. Conclusion

On the whole, there has been little systematic research into the sources of wealth gains of this second wave of going-private transactions (in the 1990s). Therefore, it is difficult to make objective statements on the efficiency and economic value of leveraged buyouts as change catalysts. Most of what is currently known about going-private transactions has been empirically verified with US samples of the 1980s. It is unclear whether this US evidence on the sources of wealth gains from going private is generalizable to US LBOs of the 1990s.

Apart from the fact that results from the 1980s may no longer apply to the present situation, there are more compelling reasons why the lessons drawn from US LBO research cannot entirely be extrapolated to UK and Continental European public-to-private transactions. First, the nature and extent of debt financing in US public-to-private transactions differ substantially from those of UK/European deals (Toms and Wright (2004)). Whereas US deals of the 1980s were primarily financed with junk bonds, mezzanine was and still is the standard in the UK and Continental Europe.<sup>32</sup> Since these two sources of funds have different characteristics (in terms of flexibility, interest rates, maturity, and covenants), it is not unlikely that the financing choice will influence the incentive mechanisms in all phases of a going-private transaction. Also, the debt levels associated with UK transactions are generally lower than those of US deals. Second, tax motives have been proven to be an important source of wealth gains in US transactions in the 1980s, but do not play such an important role under UK tax law. Third, in the US market for corporate control, far more hostile approaches prevail. The UK going-private wave of the late 1990s exhibits a hostility rate of merely 7.3% (Renneboog, Simons and Wright (2006)). This discrepancy undoubtedly affects the bidding process for firms going private, and illustrates that the takeover defense hypothesis should logically not be expected to play as big a role in UK and Continental European deals. Fourth, venture capital and buyout markets in the UK have traditionally been more closely linked than those in the US. Thus, the UK going-private activity has

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<sup>32</sup> Although recently a limited number of transactions in the UK have been financed with junk bonds.

focused on growth opportunities, whereas US LBOs have occurred more frequently in mature, cash-rich industries. Finally, the UK and Continental European markets for corporate control are organized and regulated differently than the US ones. Whereas US state regulation has effectively been able to regulate more stringently unsolicited takeover activity, the UK system has preferred self-regulation, hereby favouring the unrestricted functioning of market forces (Miller (2000: 534)).<sup>33</sup>

These differences in corporate governance regulation will influence the sources of wealth creation through going-private transactions. Moreover, the subtle idiosyncrasies in financial practices and culture on either side of the Atlantic further reduce the generalizability of US-based results to the UK/Continental European situation. This implies that there is a strong need for systematic further multi-country research into the second leveraged buyout wave. First, future research should be directed towards analyses of the type of company that goes private. Second, future research should estimate and analyze the shareholder and bondholder wealth effects of public-to-private transactions and investigate why (if at all) these wealth effects differ by corporate governance regime. Third, the process of the realization of wealth creation once the firm has been taken private should also attract research interest as little is known about that LBO stage in particular. Finally, future research should address the duration and its determinants of the private status of formerly public firms. Special attention could then be given to international comparisons and the role of going private as a corporate restructuring device in a multi-country setting.

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<sup>33</sup> For an overview of the developments of European takeover regulation: see McCahery and Renneboog (2004) and Goergen, Martynova and Renneboog (2005).

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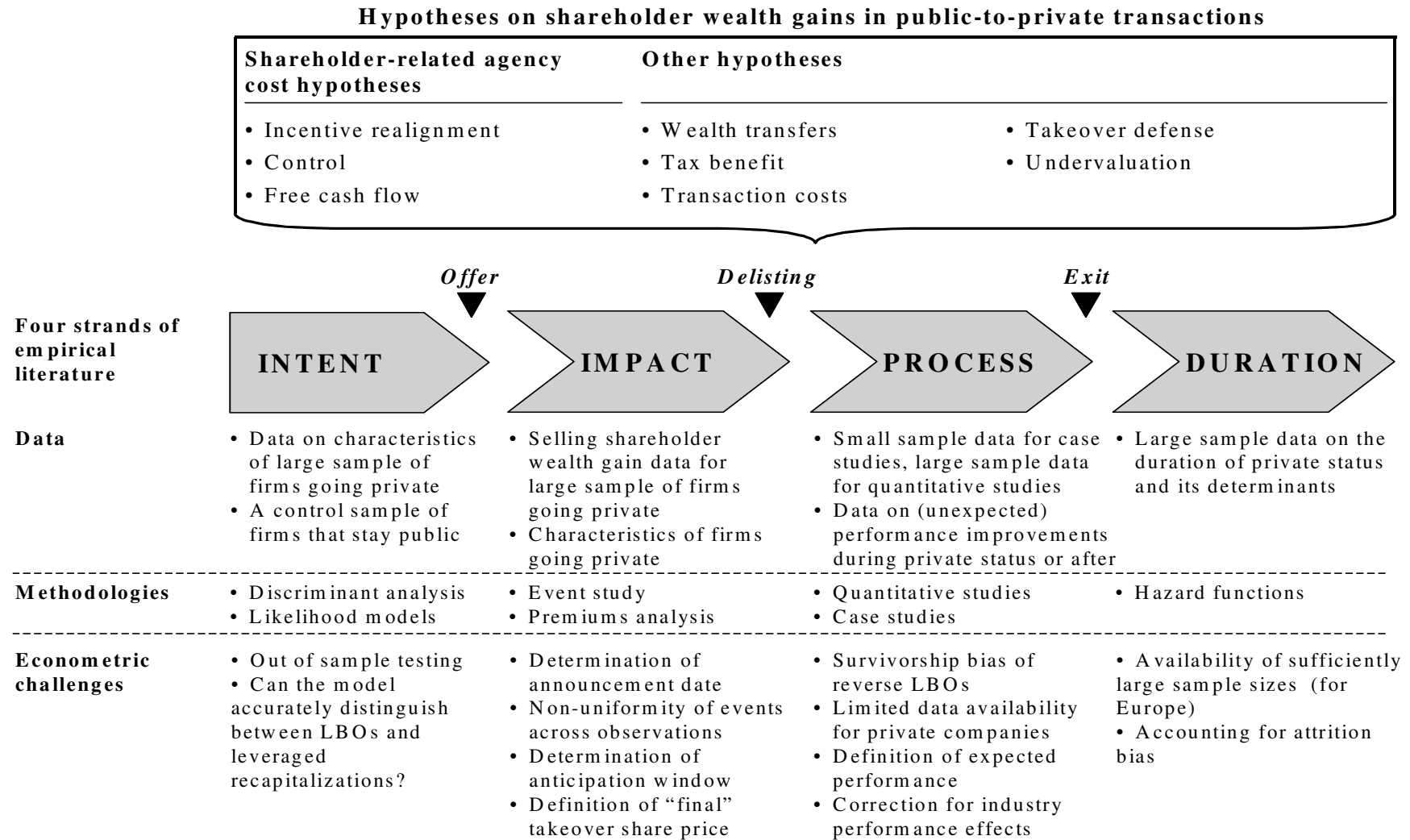
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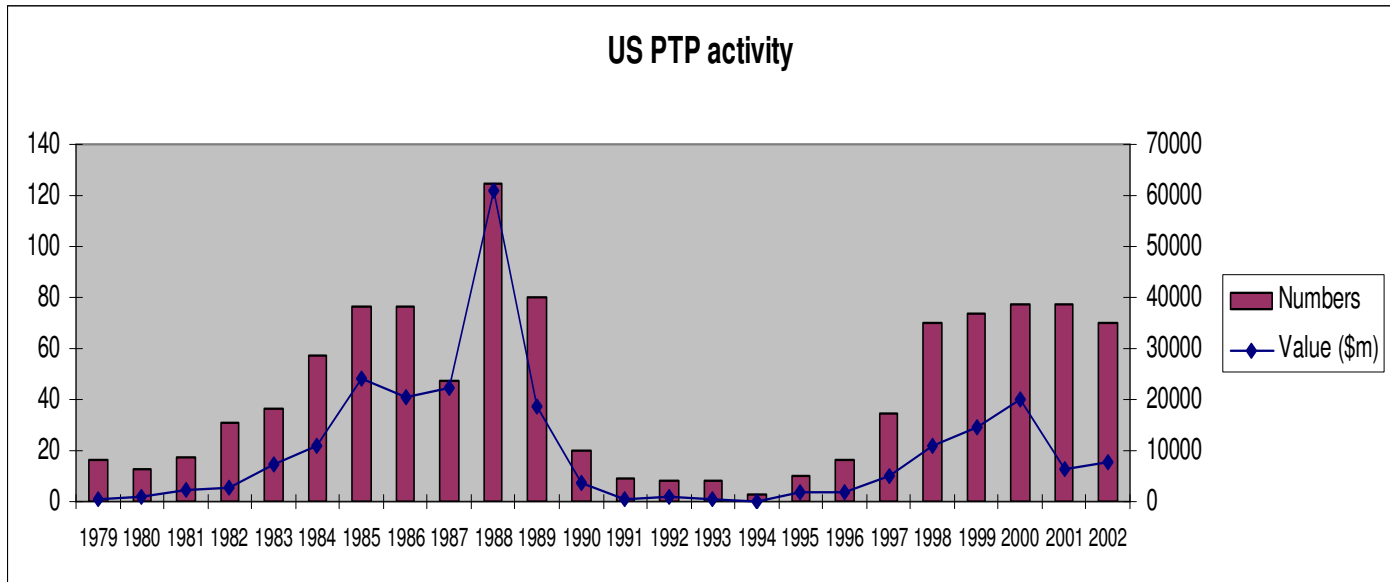
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Figure 1: The theoretical framework on the public-to-private literature



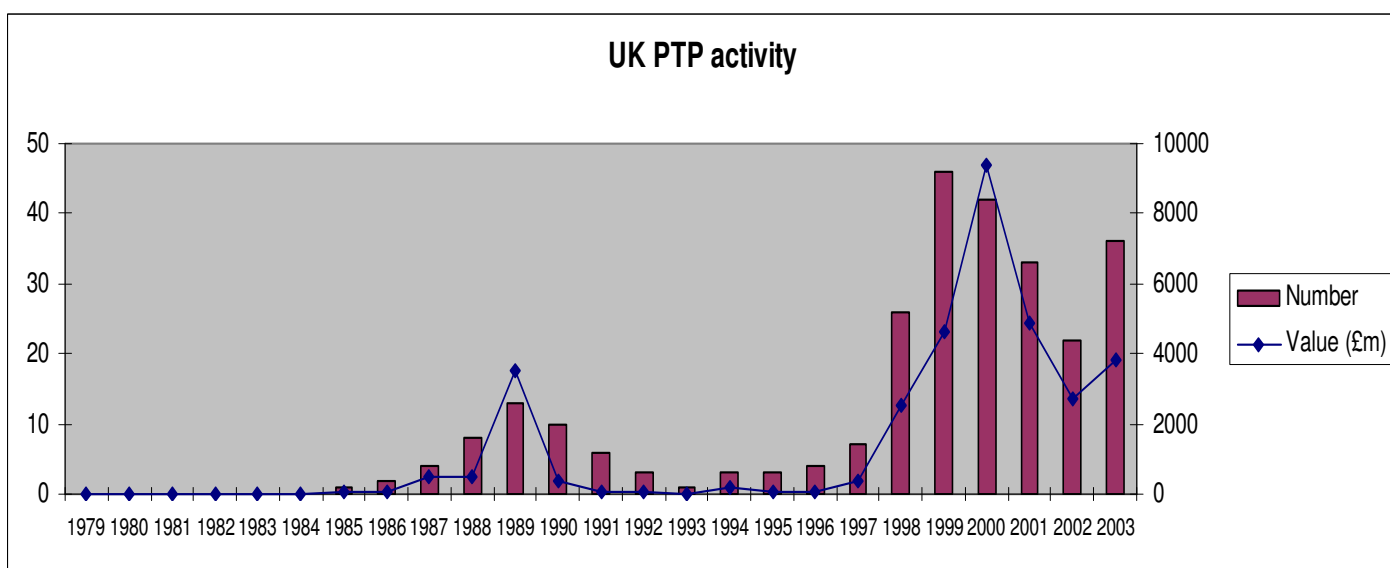
**Figure 2: US public-to-private activity**

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.



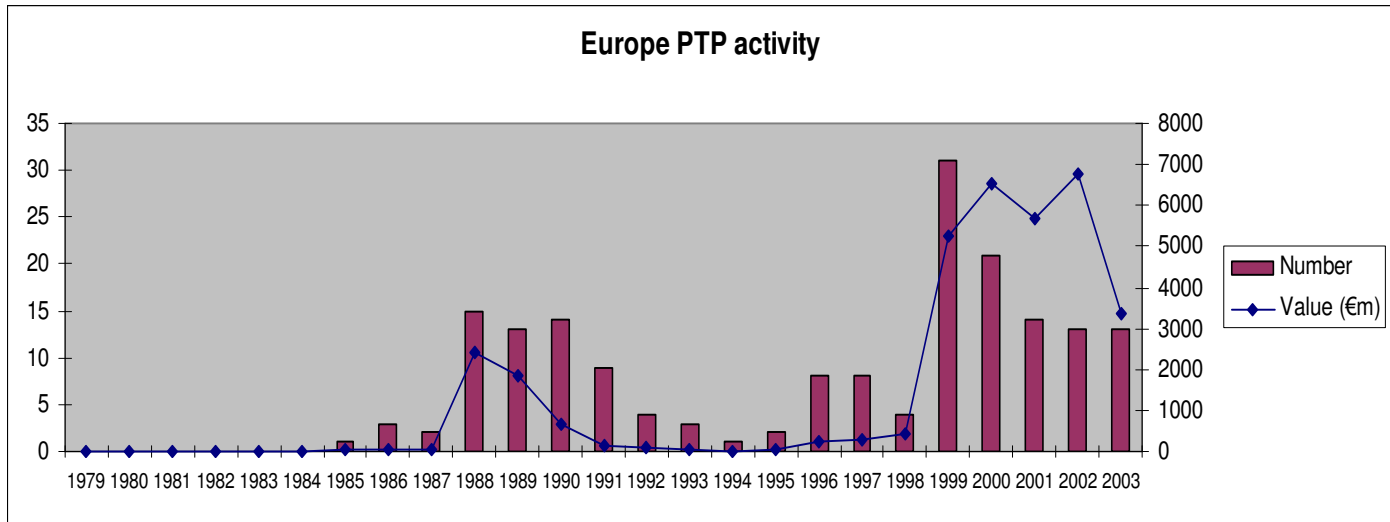
**Figure 3: UK public-to-private activity**

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



**Figure 4: 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: Summary of definitions of public-to-private terms**

<b>Term</b>	<b>Definition</b>
LBO	Leveraged buyout. An acquisition in which a non-strategic bidder acquires a listed or non-listed company, utilizing funds containing a proportion of debt substantially beyond the industry average. In case the acquired company is listed, it is subsequently de-listed and remains private for short to medium period of time
MBO	Management buyout. An LBO in which the target company's existing management bids for the control of the firm, often supported by a third-party private-equity investor
MBI	Management buyin. An LBO in which an outside management team acquires (often backed by a third-party private-equity investor) a company and replaces the incumbent management team
BIMBO	Buyin management buyout. An LBO in which the bidding team comprises members of the incumbent management team and externally-hired managers, often alongside a third-party private-equity investor
IBO	Institutional buyin. An LBO in which an institutional investor or private-equity house acquires a company. Incumbent management can be retained and may be rewarded with equity participations
Reverse LBO	A transaction in which a firm that was previously taken private reobtains public status through a secondary initial public offering (SIPO)

**Table 2: The bondholder wealth effects in public-to-private transactions**

This table shows the estimated bondholder losses of the total public debt. Losses are calculated using an event study methodology. The benchmark returns used in the market models is specified. N is the number of different bonds that were used in the analysis (some were issued by the same company). \*\*\*, \*\*, \* stand for significance at the 1, 5 and 10% level, respectively.

Study	Sample period/ country	Obs.	Deal Type	Event window	Loss/ Gain to bondholders	Benchmark
Marais, Schipper and Smith (1989)	1974-85 US	33	ALL	[-69,0] days	0.00%	Dow Jones Bond index
Asquith and Wizman (1990)	1980-88 US	199	ALL	[0,1] month	-1.1%**	Shearson-Lehman-Hutton bond index
Cook, Easterwood and Martin (1992)	1981-89 US	62	MBO	[0,1] month	-2.56%**	Shearson-Lehman-Hutton bond index
Travlos and Cornett (1993)	1975-83 US	10	ALL	[-1,0] days	-1.08%*	CRSP equally weighted index.
Warga and Welch (1993)	1985-1989 US	36	ALL	[-2,2] months	-5.00%**	Rating and maturity weighted Lehman Bond Index

**Table 3: Overview of hypotheses on wealth gains from public-to-private transactions**

<b>Hypothesis</b>	<b>Description</b>	<b>Source of theory underlying the hypothesis</b>
Incentive re-alignment	<i>Shareholder wealth gains from going private are the result of a system of incentives providing higher rewards for managers acting in line with the investors' interests.</i>	Smith (1776) Berle and Means (1932) Jensen and Meckling (1976)
Free cash flow	<i>Shareholder wealth gains from going private are the result of debt-induced mechanisms forcing managers to pay out free cash flows</i>	Jensen and Meckling (1976)
Control	<i>Shareholder wealth gains from going private result from an improved monitoring system imposed on the management team</i>	Grossman and Hart (1988) Easterbrook and Fischel (1983) DeAngelo et al. (1984)
Wealth transfers	<i>Shareholder wealth gains from going private result from the expropriation of pre-transaction bondholders, employees, or other stakeholders</i>	Weinstein (1983) Shleifer and Summers (1988)
Tax benefit	<i>Shareholder wealth gains from going private result from tax benefits brought about by the financial structure underlying the transaction</i>	Lowenstein (1985) Kaplan (1989b)
Transaction costs	<i>Shareholder wealth gains from going private result from the elimination of the direct and indirect costs associated with a listing on the stock exchange</i>	DeAngelo et al. (1984)
Takeover defense	<i>Shareholder wealth gains from going private result from the management team's willingness to pay a premium to buy out other shareholders in order to retain control</i>	Michel and Shaked (1986).
Undervaluation	<i>Shareholder wealth gains from going private result from the fact that the assets are undervalued (in the eyes of the acquiring party)</i>	Ross (1977) Kieschnick (1987) Lehn, Netter and Poulsen (1990)

**Table 4: Summary of previous empirical results for the first strand of literature: Intent**

This table shows the studies that refer to strand 1 of public-to-private research. Yes = supportive, No = unsupportive, Inconcl. = inconclusive.

Transaction type refers to which types of deals were considered in the paper: ALL = all going private deals. MBO = MBO deals only

Study	Sample period/ country	Obs.	Transaction type	Econometric technique	Tax	Incentive realignment	Control	Free cash flow	Wealth transfer	Transaction costs	Takeover defense	Under-valuation
Maupin, Bidwell and Ortegren (1984)	1972-83 US	63	MBO	Discriminant analysis	-	No	-	No	-	-	-	Yes
Lehn and Poulsen (1989)	1981-85 US	102	ALL	Logistic regressions	No	-	-	Yes	-	-	Inconcl.	No
Kieschnick (1989)	1980-87 US	263	MBO	Logistic regressions	No	-	-	No	-	No	-	Yes
Kieschnick (1998)	1980-87 US	263	ALL	Logistic regressions	Yes	-	-	No	-	-	Yes	No
Ippolito and James (1992)	1980-87 US	169	ALL	Logistic regressions	-	-	-	Inconcl	Inconcl	-	-	-
Opler and Titman (1993)	1980-90 US	180	ALL	Logistic regressions	No	-	-	Yes	-	-	-	-
Halpern, Kieschnick and Rotenberg (1999)	1981-85 US	126	ALL	Multinomial Logistic regr.	Yes	No	-	No	-	-	Yes	-
Kosedag and Lane (2002)	1980-96 US	21	ALL	Logistic regressions	Yes	-	-	No	-	-	-	-
Weir, Laing, Wright and Burrows (2004)	1998-01 UK	117	ALL	Logistic regressions	-	Inconcl.	No	No	-	-	-	-
Weir, Laing and Wright (2005a)	1998-00 UK	95	ALL	Logistic regressions	No	Yes	Yes	No	-	-	No	-
Weir, Laing and Wright (2005b)	1998-00 UK	84	ALL	Logistic regressions	No	Yes	Yes	No	-	-	No	Yes

**Table 5: Cumulative average abnormal returns in event studies of public-to-private transactions**

This table shows all papers that estimate the shareholder wealth effects using event study analysis.

\*\*\*, \*\*, \* stand for statistical significant at the 1, 5 and 10% level, respectively.

ALL = all going private deals. MBO = MBO deals only

Study	Sample period/ country	Type of Deal	Event window	Obs.	CAAR
DeAngelo, DeAngelo and Rice (1984)	1973-80 US	ALL	-1,0 days -10,10 days	72 72	22.27%*** 28.05%***
Torabzadeh and Bertin (1987)	1982-85 US	ALL	-1,0 months -1,1 months	48 48	18.64%*** 20.57%***
Lehn and Poulsen (1989)	1980-87 US	ALL	-1,1 days -10,10 days	244 244	16.30%*** 19.90%***
Amihud (1989)	1983-86 US	MBO	-20,0 days	15	19.60%***
Kaplan (1989a)	1980-85 US	MBO	-40,60 days	76	26.00%***
Marais, Schipper and Smith (1989)	1974-85 US	ALL	0,1 days -69,1 days	80 80	13.00%*** 22.00%***
Slovin, Sushka and Bendeck (1991)	1980-88 US	ALL	-1,0 days -15,15 days	128 128	17.35%*** 24.86%***
Lee (1992)	1973-89 US	MBO	-1,0 days -69, 0 days	114 114	14.90%*** 22.40%***
Frankfurter and Gunay (1992)	1979-84 US	MBO	-50,50 days -1,0 days	110 110	27.32%*** 17.24%***
Travlos and Cornett (1993)	1975-83 US	ALL	-1,0 days -10,10 days	56 56	16.20%*** 19.24%***
Lee, Rosenstein, Rangan and Davidson (1992)	1983-89 US	MBO	-1,0 days -5,0 days	50 50	17.84%*** 20.96%***
Van de Gucht and Moore (1998)	1980-92 US	ALL	-1, 1 days -10,10 days	187 187	15.60%*** 20.20%***
Goh, Gombola, Liu and Chou (2002)	1980-96 US	ALL	-20,1 days 0,1 days	323 323	21.31%*** 12.68%***
Andres, Betzer, and Hoffmann (2003)	1996-02 EU	ALL	-1,1 days -15,15 days	99 99	15.78%*** 21.89%***
Renneboog, Simons and Wright (2006)	1997-03 UK	ALL	-1,0 days -5,5 days -40,40 days	177 177 177	22.68%*** 25.53%*** 29.28%***

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**Table 6: Premiums paid above market price to take a firm private**

This table shows all papers that estimate the shareholder wealth effects of going private through premiums analysis. The results are not independent due to partially overlapping samples.

\*\*\*, \*\*, \* stand for statistical significant at the 1, 5 and 10% level, respectively.

ALL = all going private deals. MBO = MBO deals only.

Study	Sample period/ Country	Type of deal	Anticipation Window	Obs.	Mean Premium offered
DeAngelo, DeAngelo and Rice (1984)	1973-80 US	ALL	40 days	72	56.3%
Lowenstein (1985)	1979-84 US	MBO	30 days	28	56.0%
Lehn and Poulsen (1989)	1980-87 US	ALL	20 days	257	36.1%
Amihud (1989)	1983-86 US	MBO	20 days	15	42.9%
Kaplan (1989a, 1989b)	1980-85 US	MBO	2 months	76	42.3%
Asquith and Wizman (1990)	1980-88 US	ALL	1 day	47	37.9%
Harlow and Howe (1993)	1980-89 US	ALL	20 days	121	44.9%
Travlos and Cornett (1993)	1975-83 US	ALL	1 month	56	41.9%
Easterwood, Singer, Seth and Lang (1994)	1978-88 US	MBO	20 days	184	32.9%
Weir, Laing and Wright (2005a)	1998-2000 UK	ALL	1 month	95	44.9%
Renneboog, Simons and Wright (2006)	1997-2003 UK	ALL	20 days	177	41.00%

**Table 7: Summary of the second strand of the literature: Impact**

This table shows the most important papers that deal with strand 2 of public-to-private research. Yes = supportive, No = unsupportive, Inconcl. = inconclusive. All estimated shareholder wealth effects from Table 3 and 4 are reproduced here. \*\*\*, \*\*, \* stand for statistically significant at the 1, 5 and 10% level, respectively. ALL = all going private deals, MBO = MBO deals only, FCF = Free Cash Flow hypothesis, Bidder Comp. = Bidder competition.

Study	Sample period/ country	Obs.	Type of deal	Event window	CAAR	Anticipation Window	Premium	Tax	Incentive Realignm.	Control	FCF	Wealth transfer	Trans cost	Defen- sive	Under value
DeAngelo, DeAngelo and Rice (1984)	1973-80 US	72	ALL	-1,0 days -10,10 days	22.27%*** 28.05%***	40 days	56.3%	-	Inconcl.	Inconcl.	-	-	-	-	-
Lowenstein (1985)	1979-84	28	MBO	-	-	30 days	56.0%	-	-	-	-	-	-	-	-
Torabzadeh and Bertin (1987)	1982-85 US	48	ALL	-1,0 months -1,1 months	18.64%*** 20.57%***	-	-	-	-	-	-	-	-	-	-
Lehn and Poulsen (1989)	1980-87 US	244	ALL	-1,1 days -10,10 days	16.30%*** 19.90%***	20 days	36.1%	No	-	-	Yes	-	-	-	-
Amihud (1989)	1983-86 US	15	MBO	-20,0 days	19.60%***	20 days	42.9%	-	-	-	-	-	-	-	-
Kaplan (1989a , 1989b)	1980-85 US	76	MBO	-40,60 days	26.00%***	40 days	42.3%	Yes	-	-	-	-	-	-	-
Marais, Schipper and Smith (1989)	1974-85 US	80	ALL	0,1 days -69,1 days	13.00%*** 22.00%***	-	-	-	-	-	-	No	-	-	-
Asquith and Wizman (1990)	1980-88 US	47	ALL	-	-	1 day	37.9%	-	-	-	-	No	-	-	-
Lee (1992)	1973-89 US	114	MBO	-1,0 days -69, 0 days	14.90%*** 22.40%***	-	-	-	-	-	-	-	-	-	No
Lee, Rosenstein, Rangan and Davidson (1992)	1983-89 US	50	MBO	-1,0 days -5,0 days	17.84%*** 20.96%***	-	-	-	-	-	-	-	-	-	-
Frankfurter and Gunay (1992)	1979-84 US	110	MBO	-50,50 days -1,0 days	27.32%*** 17.24%***	-	-	Yes	No	-	Yes	-	-	-	-

Table 7 continued

Study	Sample period/ country	Obs.	Type of deal	Event window	CAAR	Anticipation Window	Premium	Tax	Incentive Realignm.	Control	FCF	Wealth transfer	Trans cost	Defen- sive	Under value
Travlos and Cornett (1993)	1975-83 US	56	ALL	-1,0 days -10,10 days	16.20%*** 19.24%***	1 month	41.9%	Inconcl .	Inconcl.	Inconcl	Inco ncl.	No	No	-	Yes
Harlow and Howe (1993)	1980-89 US	121	ALL	-	-	20 days	44.9%	-	-	-	-	-	-	-	Yes
Easterwood, Singer, Seth and Lang (1994)	1978-88 US	184	MBO	-	-	20 days	32.9%	-	-	-	-	-	-	-	-
Halpern, Kieschnick and Rotenberg (1999)	1981-85 US	126	ALL	-	-	-	Not mentioned	No	No	-	No	-	-	-	-
Goh, Gombola, Liu and Chou (2002)	1980-96 US	323	ALL	-20,1 days 0,1 days	21.31%*** 12.68%***	-	-	-	-	-	-	-	-	-	Yes
Andres, Betzer, and Hoffmann (2003)	1996-02 EU	99	ALL	-1,1 days -15,15 days	15.78%*** 21.89%***	-	-	No	No	Yes	No	No	-	-	Yes
Renneboog, Simons and Wright (2006)	1997-2003 UK	177	ALL	-1,0 days -5,5 days -40,40 days	22.68%*** 25.53%*** 29.28%***	20 days	41.00%	No	Yes	Yes	No	-	Yes	No	Yes

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**Table 8: Summary of the third strand of literature: Process**

This table shows the most important papers that deal with strand 3 of the public-to-private research. Yes = supportive, No = unsupportive, Inconcl. = inconclusive. Type of deal ALL refers to all going private transactions, MBO and MBI stands for management buyout and management buyin transactions, respectively.

Study	Sample period/ country	N	Transaction type	Tax	Incentive realignment	Control	Free cash flow	Wealth transfer	Transactio n costs	Takeover defense	Under- valuation
Kaplan (1989a)	1980-85 US	76	MBO	-	Yes	-	-	No	-	-	No
Baker and Wruck (1989)	1986 US	1 case	MBO	-	Yes	Yes	Yes	No	-	-	No
Smith (1990)	1977-86 US	58	MBO	-	Yes	-	-	No	-	-	No
Muscarella and Vetsuypens (1990)	1973-85 US	151	MBO	-	Yes	Yes	-	No	-	-	Yes
Lichtenberg and Siegel (1990)	1981-86 US	244	ALL	-	-	Yes	-	No	-	-	-
Jones (1992)	1984-85 US	17	MBO	-	Yes	-	-	-	-	-	-
Opler (1992)	1985-89 US	45	ALL	Yes	Yes	-	-	-	-	-	Inconcl.
Liebeskind, Wiersema and Hansen (1992)	1980-84 US	33	ALL	-	Yes	-	-	-	-	-	-
Green (1992)	1980-84 UK	8 cases	MBO	-	No	-	-	-	-	-	-

**Table 8 continued**

Study	Sample period/ Country	N	Transaction type	Tax	Incentive realignment	Control	Free cash flow	Wealth transfer	Transaction costs	Takeover defense	Under- valuatio n
Long and Ravenscraft (1993)	1978-89 US	48	ALL	Yes	-	-	Yes	-	-	-	-
Denis (1994)	1986 US	2 cases	LBO	-	Yes	Yes	Yes	-	-	-	No
Zahra (1995)	1992 US	47	ALL	-	Inconcl.	Inconcl.	Inconcl.	-	-	-	-
Robbie and Wright (1995)	1987-89 UK	5 cases	MBI	-	Yes	Yes	-	-	-	-	Yes
Holthausen and Larcker (1996)	1983-88 US	90	ALL	-	Yes	-	No	-	-	-	-
Bruton, Keels and Scifres (2002)	1980-88 US	39	ALL	-	Yes	-	-	-	-	-	-

**Table 9: Summary of previous empirical results for the fourth strand of literature: Duration**

This table shows the most important papers that deal with strand 4 of public-to-private research. ALL stands for all going private transactions (LBOs, MBOs, MBIs, IBOs).

<b>Study</b>	<b>Sample period/ country</b>	<b>Type of deal</b>	<b>Obs.</b>	<b>Main result of the study</b>
Kaplan (1991)	1979-86 US	ALL	183	After year 5, the conditional probability of returning to public ownership decreases.
Van de Gucht and Moore (1998)	1980-92 US	ALL	343	Until year 7, the conditional probability of returning to public markets increases, while after seven years, it decreases. The timing of reversion is influenced by the financial markets' climate.
Wright, Robbie, Thompson and Starkey (1994)	1981-92 UK	ALL	2,023	Ownership, financial, and market-related factors determine the duration of the private status.
Wright, Thompson, Robbie and Wong (1995)	1983-86 UK	ALL	140	The conditional probability of reversion increases strongly between year 3 and year 6, and subsequently decreases.
Halpern, Kieschnick and Rotenberg (1999)	1981-85 US	ALL	126	Longevity of the private status is increasing in managerial equity stake.