

Private Equity Portfolio Company Fees

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Abstract

In private equity, General Partners (GPs) may receive fee payments from companies whose board they control. This paper describes the related contracts and shows that these fee payments sum up to \$20 billion evenly distributed over the last twenty years, representing over 6% of the equity invested by GPs on behalf of their investors. Fees do not vary according to business cycles, company characteristics, or GP performance. Fees vary significantly across GPs and are persistent within GPs. GPs charging the *least* raised *more* capital post financial crisis. GPs that went public distinctively increased their fees prior to that event. We discuss how results can be explained by optimal contracting versus tunneling theories.

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“It is not clear exactly what these transaction fees are paying for, since GPs should already be receiving (...) management fees. We think of these transaction fees as just being one way that [GPs] can earn revenue (...) It is difficult to find reliable information about the frequency and size of these fees (...) As with transaction fees, we think of monitoring fees as just another way for funds to earn a revenue stream.” Metrick and Yasuda (2010)

When private equity firms sponsor a takeover, they may charge non-arms’ length fees to the target company while some of the firm’s partners sit on the company’s board of directors. In the wake of the global financial crisis, such potential for conflicts of interest became a public policy focus. On July 21st 2015, thirteen state and city treasurers wrote to the SEC to ask for private equity firms to reveal all of the fees that they charge investors. In August 2015, one of the largest private equity investors said that it will no longer invest in funds that do not disclose all of their fees.¹ The SEC announced on October 7th 2015, that it “will continue taking action against advisers that do not adequately disclose their fees and expenses” following a settlement by Blackstone for \$39 million over so-called accelerated monitoring fees.

Relatively little is known about fees charged to portfolio companies by private equity firms: What are the different types of fees, what do they pay for, and how much is charged? How common are the accelerated monitoring fees the SEC seems to focus on, and are these fees a new phenomenon? Do fees vary by GP, business cycles, or company type? Can these fees be rationalized? Using a comprehensive hand-collected dataset, this paper aims to fill this gap.

Most private equity funds are organized as limited partnerships, with private equity firms (e.g. Blackstone, KKR) serving as general partners (GPs) of the funds, and institutional investors providing most of the capital as limited partners (LPs). Limited Partnership Agreements (LPAs) are signed at the funds’ inception and define the expected payments by LPs to GPs: a fixed management fee, and a carried interest which is paid if the return exceeds a threshold level (like a call option). Gompers and Lerner (1999) and Metrick and Yasuda (2010) show that these two fee components are overall similar across GPs and over time.

The amount of fees charged to portfolio companies is not specified in the LPA; they are contracted upon in Management Services Agreements (MSAs) which are signed by GPs and representatives of the company at the time of the transaction, hence ex-post LPA. The LPA, however, states the fraction of each type of portfolio company fee that is rebated against the management fee due by LPs.

¹ Wall Street Journal, August 6th 2015: <http://www.wsj.com/articles/dutch-pension-fund-demands-full-fee-disclosure-from-private-equity-firms-1438850122>

It may be surprising that LPs do not agree on all fees ex-ante and leave ex post discretion to GPs. Yet, as limited partnerships last for 10 to 14 years, LPAs are necessarily incomplete contracts. It is not only costly to write the numerous contingencies that can arise over such a long period of time but also difficult to even foresee these contingencies. For example, five years after the LPA is signed, there may be an unexpected hike in the cost of executing or monitoring LBOs. The earliest foundations of transaction cost economics (Williamson (1971)) argue that incomplete contracts imply the need for ex-post adaptation. The procurement literature, for example, highlights the importance of allowing agents to charge ex-post adaptation costs (e.g. Crocker and Reynolds (1993), Bajari and Tadelis (2001), Bajari, Houghton, and Tadelis (2014)). The solution to the dynamic incomplete contracting problem in the private equity industry may be similar to that of the procurement literature. We may need a combination of an ex-ante contract such as the LPA, which is standard and similar across GPs, followed by an ex-post adjustment contract such as the MSA. This type of argument implies that portfolio company fees should be predominantly company- and time-specific, not GP-specific: companies that are riskier or more difficult to monitor should command higher fees, and fees should increase with the level of environmental complexity (e.g. times of higher credit spreads, lower credit supply; Axelson et al. (2013)).

There are several other theoretical arguments that may support the view that MSAs are part of an optimal contracting device. We mention four such arguments here. First, as LPs need to learn about GP's talent and pay GPs accordingly, it may be optimal to start with a standard and low compensation, and to let GPs adjust it upward if and when they are successful (see Berk and Green (2004), Robinson and Sensoy (2013)). Second, GPs have less financial incentives when their carried interest is 'out-of-the-money'; MSAs can be used to reset their incentives then. Similarly, when a company is in financial distress, equity holders have less incentive to perform since some of the benefits accrue to debtholders (Myers (1977)). Discretionary adaptation fees could solve this old problem. Third, as fees are subordinated to debt, they can be a commitment device by GPs to repay debt in order to earn the fees (Malenko and Malenko (2015)). Fourth, MSAs can counteract a GP's incentive to invest in bad projects when they are getting close to their investment period deadline (Axelson, Strömberg, and Weisbach (2009)). These arguments imply that the following characteristics should be related to fee levels: the GPs' past and current performance, the portfolio company's financial distress, the GP's reputation with creditors, and fund age at the time of LBO inception.

Alternatively, these fees may be a wealth transfer. As with any wealth transfer, a stakeholder must lose out and we identify three possible victims. First, the transfer may be at the expense of the tax authorities. The idea, building on Polsky (2014), is that GPs transfer cash out of the company and call it a fee rather than a dividend because fees, unlike dividends, are deductible from corporate taxes. GPs then share the tax savings with LPs (see Appendix A for a detailed example).

Second, the transfer could target LP supervisors: e.g. regulators, the board of trustees. LPs report to their principals the fees that they pay to the GPs. By charging fees directly to portfolio companies instead of charging management fees to LPs, expense ratios reported by LPs are lower.

Third, these fees may be the result of tunneling as defined by Johnson et al. (2000) as the: “transfer of resources out of a company to its controlling shareholder [i.e. the GP] (...) via self-dealing transactions.” In that case, cash is simply withdrawn from LP investments without their consent. However, the GP-LP interaction is a repeated game: if GPs divert cash away from LPs, returns are lower, hence future funds are smaller, and future fees are lower (see Chung et al. (2012)). In addition, LPs may notice this and drive tunneling GPs out of business. GPs intertemporal rate of substitution, i.e. impatience, plays a key role under this self-dealing view.

Under the tax tunneling view, we expect GPs to charge more at times where more taxes are being paid (i.e. in good times), and to companies with larger tax bills. GPs should rebate at least 60% of the portfolio company fees to LPs because the maximum marginal corporate tax rate is 40%. Under the supervisor tunneling view, we could conjecture that GPs with more fund-of-funds as LPs charge more because the fund-of-funds supervisors are retail investors and small institutional investors who may monitor less effectively. Under both of these two ‘wealth transfer’ views, LPs should allocate more capital to GPs that charge more portfolio company fees (all else equal). In contrast, the self-dealing view implies that the rebate is less than 100%, that LPs invest less in funds that charge more portfolio company fees if and when they can observe these fees, and that fee levels are persistent within GPs except at times when there is pressure to increase short-term revenues.

We show that it is possible, albeit at great cost, to obtain comprehensive information about the portfolio company fees charged between 1995 and 2014: we examine 25,000 pages of relevant SEC filings covering 1,044 GP investments in 592 Leverage Buy-Out (LBOs) transactions, whose total enterprise value (TEVs), including add-on acquisitions, sum up to \$1.1 trillion.

There are two main portfolio company fees. A transaction fee is charged at the time of LBO inception and when ‘add-on’ acquisitions are made. The sum of the transaction fees in our sample is \$10 billion, representing 0.9% of aggregate TEV. Monitoring fees are charged quarterly during the life of the investment; they sum to a similar amount. Other fees (e.g. refinancing fees) add up to \$2.4 billion, but are not included in the rest of the analysis. In total, fees add up to nearly \$20 billion, and are basically equally distributed over time.

Monitoring fees are most correlated with the total EBITDA generated during the life of the investment, whereas transaction fees are primarily related to TEV. LBO characteristics such as industry, earnings volatility, leverage, and GP ownership explain little of the overall variation in fees. Similarly, business and LBO-industry cycles have little explanatory power. Fees are not higher at times when it is more difficult to execute and monitor LBO investments (e.g. times of high credit

spreads), or at times of lower corporate profits. In fact, adding time fixed effects increases R-squared values by less than 10 percent. This evidence is not consistent with the hypothesis derived from the procurement literature or with the ‘tax view.’ Moreover, contrary to the predictions of the tax view, only half of the companies have positive earnings before tax and these companies do not pay more fees.

Next, we document strong evidence of fee persistence at the GP level. When we control for GP past-fee policy, we find that the R-squared value doubles. Fees seem to be a GP-specific characteristic.

GPs form a company that is privately held by a few ‘partners.’ In 2006-2008, three GPs decided to deviate from this ownership model and their partners sold part of their stakes. This event offers another opportunity to test the tunnelling view. The IPO literature shows that the cash flow of firms going public tends to increase around the time of their IPO, presumably because IPO firms pump up their performance in order to fetch higher valuations at the offering (DeGeorge and Zeckhauser (1993)). If portfolio company fees are related to GPs intertemporal rate of substitution, we would expect them to exhibit this pattern.

Although the decision by GPs to sell part of their company is endogenous, we note that there are three similarly large GPs, with a similar track record who remained private. In addition, the two types of portfolio company fees should affect GP valuation differently: on-going ten-year fixed monitoring fee contracts have a larger impact on valuations than (one-time non-recurring) transaction fees. Hence, monitoring fees should increase more. If the decision to sell is, instead, due to market timing, we would not expect one particular fee to increase more than the other.

We find that the three selling GPs nearly doubled their monitoring fees while the other three comparable GPs decreased these fees by 38% (the rest of the GPs increased them by 22%). Subsequent performance is similar for the selling GPs and the other GPs, indicating that there was no obvious improvement in monitoring. These results are robust to using various control variables.

Our final piece of empirical evidence focuses on the capital flow-fee sensitivity. As noted above, it is arguably not until the aftermath of the financial crisis that the existence of portfolio company fees became public information. How did LPs react once the news was out and information about these fees piled up?

We find that the amount of capital raised post-crisis (2009 to 2015) is strongly related to the amount of portfolio company fees charged by GPs pre-crisis. This result also holds after we control for the amount of capital raised pre-crisis and for past performance (both are positively related to the amount of capital raised post-crisis). This means that high-fee GPs were ‘penalized’ both for lower performance (fees mechanically reduced performance) and for these fees per se.

If we simply rank GPs by the amount of fees they charge, we see that about half of those charging the most have not raised a new fund since the crisis; most of the other half raised much smaller funds. In contrast, the GPs that charge the least have all raised a new fund, in a relatively short time, and raised more money post-crisis than pre-crisis.

Evidence of LPs rewarding low-fee GPs contradicts all of the hypotheses except for the self-dealing hypothesis. Alternative views would have to be behavioral. For example, LPs or their supervisors may overreact to information about these fees; they do not realize that these fees are optimal and in their best interests.

Overall, the body of evidence is difficult to reconcile with the ‘optimal’ view or the ‘tax’ view. It seems that market forces are at work similar to what Brown, Gredil, and Kaplan (2015) argue about potential accounting manipulations by GPs. GPs that charge the highest fees tend to be outliers, small, young, and raise significantly less capital going forward. The only caveat is that it took two decades for market forces to manifest themselves here. Perhaps the regulatory intervention has been decisive in helping out investors who have not generally benefitted from SEC protection. Yet, the magnitude of the SEC fines is not commensurate with the amount of fees we document. Perhaps, regulators face a ‘too big to fine’ and ‘too late to fine’ situation. For instance, we show that transaction fees do not cover transaction costs but various ‘financial advice’ provided by GPs at the time of the transaction. It has been argued that this falls under the definition of ‘broker dealer’ and since GPs did not register as such the law requires them to refund the full amount perceived. In our sample alone this amounts to \$10 billion. In addition, we show that these fees are present as far back as we can go and are mentioned in SEC filings. This too makes it difficult for the SEC to implement their ‘broker dealer’ rule. If only a few GPs would have charged these fees and done so only in the run up to the financial crisis the situation would be different. On a similar note, the SEC seems to have fined one prominent GP for insufficient disclosure of accelerated monitoring fees. We find that such fees are not ubiquitous across GPs but are nonetheless charged by many GPs, not just one. In addition, amounts charged are much larger than those mentioned in the fine.

Finally, expenses charged by GPs to portfolio companies and potential kick-back arrangements with suppliers to these companies may present the largest potential for conflicts of interest. We do not have the required data for such an analysis but it may be a first-order issue.

The paper continues as follows: Section 1 describes the content of MSAs and presents the related literature. Section 2 discusses the data and key descriptive statistics. Section 3 is dedicated to the cross-section of fees charged in different LBOs. Section 4 studies the cross-section of fees charged by different GPs. Section 5 concludes by discussing possible future research, policy implications, and whether portfolio company fees are a question of the past, or not.

1. Management Services Agreements: Content and related literature

We begin with some institutional details about the working of private equity funds. Next, we describe the content of Management Service Agreements (MSAs). Finally, we review the relevant literature, and formulate some hypotheses as to what the main motivation behind MSAs might be and what the empirical implications are.

1.1. Institutional details

Private equity comprises various types of investments: venture capital, real estate etc. The largest category of private equity investments is Leveraged Buy-Out (LBO) whereby a fund takes control of a company using a significant amount of debt. From the start of the global financial crisis to the end of 2013, LBO firms have raised as much as \$1 trillion of capital. Carlyle, KKR, Blackstone and Apollo – the four largest LBO firms – alone have raised \$100 billion dollars.²

An LBO fund is a private partnership between i) a group of asset owners (e.g. pension funds, sovereign wealth funds) called Limited Partners (LPs) and ii) an LBO firm called General Partner (GP). A contract is signed at the time of fund inception between a GP and its LPs: the Limited Partnership Agreement (LPA). LPAs govern the LP-GP relationship for the life of the fund which is at least ten years; they are described in detail in studies by Gompers and Lerner (1999) and Metrick and Yasuda (2010).

LPs commit capital to GPs and GPs are given five years to find suitable investments to spend that committed capital. When GPs find a suitable investment, they call the necessary amount of capital from the LPs, arrange the acquisition, and usually take control of the board of directors, i.e. assign the majority of the seats to their employees.³ The board of directors, in turn, appoints the executive team. A Management Services Agreement (MSA) is then signed between GPs and the Executive team. Figure 1 illustrates this time line.

LPAs specify a management fee LPs need to pay GPs every quarter (about 0.5% of capital committed per quarter), and a carried interest (20% of profits is paid to GPs if an internal rate of return of 8% per annum net of all fees is reached). In addition, LPAs mention that portfolio company fees may be charged and specify what fraction of each type of portfolio company fee will be refunded. The refund, also called rebate or offset, is done by reducing the management fee due in a given quarter. If there is more money to be refunded than management fees due then the excess may be rolled over to

² Amounts raised by largest 300 firms in funds that ‘closed’ between 2009 and 2013.

[https://www.privateequityinternational.com/uploadedFiles/Private_Equity_International/PEI/Non-Pagebuilder/Aliased/News_And_Analysis/2014/May/Magazine/PEI%20300%20May%202014\(2\).pdf](https://www.privateequityinternational.com/uploadedFiles/Private_Equity_International/PEI/Non-Pagebuilder/Aliased/News_And_Analysis/2014/May/Magazine/PEI%20300%20May%202014(2).pdf)

³ Cronqvist and Fahlenbrach (2013) show a reduction in board size post-LBO by 1.3 directors to 8.3, 5.5 of which are private equity sponsor representatives. Cornelli and Oguzhan (2015) show on average that 33% of the seats on the board are taken by LBO sponsors after the LBO.

the next quarter (the roll-over rules, the list of exceptions, the methodology etc. are specified in the LPA).

Notice that LPs do not negotiate on the content of MSAs and therefore do not negotiate the level of the fees charged. MSAs are ex-post contracts for LPs and in practice, LPs are not shown past MSAs.⁴ LPs negotiate only on management fees, carried interest, and the fraction of portfolio company fees that is rebated against the management fees due. In other words, the possibility that MSAs will be in place is mentioned in the LPA but the content of MSAs is not described in LPAs.

Figure 2 provides a detailed illustration of the situation at the time of the investment. LPs provide the equity to a shell company, usually sitting on the Cayman Islands. This transaction is organized, a.k.a. 'sponsored', by GPs. GPs control the board of the shell company and thus appoint the senior executive team. The shell company then takes over the assets of a company incorporated in the US, thereby buying-out its equity and debt holders. The shell company now has the assets of the targeted company, and it becomes the portfolio company. It is controlled by the GP and has the capital structure of the shell company. The executive team signs a Lending Agreement (LA) with the lenders and a Management Services Agreement (MSA) with the GPs.

The situation of the executive team in an LBO setting is particularly interesting. On the one hand executives are appointed by GPs, making them de facto their employees. It is difficult for them to refuse to sign an MSA or negotiate the content. In fact, GPs sometimes sign the MSA on behalf of the executive team. On the other hand, executives have a significant equity ownership – typically 10 to 20 percent – and own the most junior equity tranche. Fees represent an ex-post dilution of the executives' equity ownership in the company thereby significantly reducing compensation. Executives are thus expected to negotiate the MSA as part of their overall compensation package.⁵

Lenders should also have a say. As ex-post cash transfers out of the company are detrimental to debtholders, lenders should restrict and monitor MSAs. This situation is reminiscent of the LBO model presented in Axelson, Strömberg, and Weisbach (2009), where lenders act as ex-post gatekeepers. Lenders may also raise the cost of financing for GPs that charge higher fees.

Importantly, GPs need to raise a new fund every two to four years in order to have sufficient capital to seize investment opportunities at any point in time. In other words, GPs need to go back to LPs regularly to refill their credit line: the LP-GP interaction is a 'repeated game.' Deceived LPs commit less, if at all, to GPs' next fund, which discipline the GP as long as the GP has a positive probability to raise a follow-on fund.

⁴ Past MSAs are not included in documents sent to current or prospective LPs. Anecdotally prominent LPs told us that they could not obtain MSAs from GPs before 2008. From 2011, most GPs tell their LPs how much transaction and monitoring fees they charge. Practitioners are surprised when we tell them MSAs are in SEC filings.

⁵ Anecdotally, a serial private equity executive told us that he does not accept appointments by certain GPs because their MSAs are 'excessive.' Another executive told us that he refused to pay GP expenses and he could afford to do this because he was doing well and, as a result, the GP would not fire him.

1.2 Description of Management Services Agreements

Appendix B shows key parts of the Management Services Agreements (MSAs) signed for the first, third and fifth largest LBO to date, and for three mid-market LBOs. Two of the mid-market MSAs are for Simmons, a company that was held by two different GPs successively. One of these two GPs is TH Lee and the third mid-market LBO is one sponsored by TH Lee (so we can observe two contracts for the same company written by two different GPs, and two contracts of the same GP written for two different companies). We describe the first MSA in detail and then discuss how subsequent MSAs diverge from this first MSA.

Energy Future (Appendix B1)

This agreement was entered on October 10 2007. The TEV is \$45 billion. The MSA starts by mentioning that EFH ‘retains’ the three GPs (KKR, TPG and Goldman Sachs) to provide services to the company. The 14-people board of EFH counts three representatives for each of the three GPs; hence the GPs control the board of EFH.

Section 1 specifies a \$35 million annual ‘advisory fee’, a.k.a. ‘monitoring fee.’ This fee increases by 2% per year. Corresponding services are broadly defined as ‘certain management, consulting and financial services.’ Interestingly, the MSA states that these services are of ‘the type customarily performed by such Managers.’ All fees mentioned in the MSA are split according to the respective ownership of equity by the three GPs and not how, a priori, the workload is shared.

Section 2 states that *if* the company is prohibited from paying the fees due (e.g. because of a lending agreement) fees will be paid when it is no longer prohibited to pay them. Fees are then usually carried forward with a compounded interest rate of 10-15% per annum.

Section 3 contains the transaction fee: \$300 million is charged for ‘financial advisory services and capital structure review.’ Lehman Brothers worked in connection with the acquisition and receives \$6 million of the \$300 million; this is not recorded in our dataset because Lehman Brothers is not a GP in this transaction.

Section 4 covers post-acquisition fees: each *proposed* acquisition, merger, recapitalization, structural reorganization, dispositions of assets etc. generates a fee equal to 1% of the transaction value, subject to the consent of the board of directors, which is controlled by the three GPs.

Section 5 authorizes GPs to invoice the company for ‘reasonable’ expenses in connection with their task. Traditionally, management fees paid by LPs are seen as covering the cost of acquiring, monitoring and disposing of businesses for GPs (e.g. GPs need to hire lawyers, visit companies). MSAs shift these expenses to the company and LPs do not get any rebate of these expenses. In addition, MSAs seem to allow GPs to invoice their internal cost of providing their services. For example, a GP may perform a refinancing transaction. The department within the GP that executes

this transaction might be considered an ‘other professional advisor’ in which case GPs receive both their share of the 1% of the transaction value (as of section 4) and be refunded for the service rendered. Expenses claimed by GPs are not disclosed and not covered in this study. Importantly, this section implies that the \$300 million transaction fee does *not* cover the cost of acquiring a company, which coincidentally is also usually in the range of 1% to 2% of TEV.

Section 12 states that the agreement is in place until 2019, i.e. for twelve years. Termination can be triggered by mutual consent, or by a change of control or IPO, but this is up to the company, hence the board of directors, hence the GPs. In this event, GPs receive a ‘termination fee’ equal to the present value of the advisory fees up to 2019 (discount rate is the risk-free rate of a maturity-matching US T-Bill). By definition the termination fee is not related to actual work since the termination can be decided at any time and (de facto) unilaterally. The work related to a change of control (e.g. IPO) is covered in section 4: a 1% fee can be charged for it.

Sections 15 to 17 are partly waiving fiduciary duties: for example, section 15 states that the GPs cannot be held liable in case it has not performed any services or if the services were not satisfactory. Those signing on behalf of the company are working for TPG and KKR: Jeffrey Liaw was Vice President at TPG since 2005 and Jonathan Smith was at KKR since 2000.

Hospital Corporation of America (Appendix B2)

This agreement was entered on November 17, 2006. The TEV is \$33 billion; it is the third largest LBO transaction (as of 2014). Section 1 details the type of services covered by the agreement. The work to be provided is what GPs ‘deem reasonably necessary or appropriate; provided, *however*, that no minimum number of hours is required to be devoted.’ A particularity of this MSA is that the founding family receives \$29 million of transaction fees while it is unclear how the founding family can contribute to the sort of legal, accounting or advisory work listed in Section 1 of the MSA. The monitoring fee here increases each year as a function of the growth in adjusted EBITDA and is therefore performance dependent (rather than workload dependent). Again, all fees are split according to the respective ownership of equity by the GPs.

Of interest is the fact that the list of refundable expenses includes the use of privately owned airplanes, a.k.a. private jets, “as determined by the party seeking reimbursement.” Unlike in the previously shown MSA, the person signing for HCA is *not* an employee of any of the GPs.

Harrah’s Entertainment (Appendix B3)

This agreement was entered on January 28, 2008. The TEV is \$27 billion; it is the fifth largest LBO transaction to date. The MSA is similar to the two MSAs reviewed above. Section 2a seems more explicit about allowing GPs’ internal costs to be invoiced to the company; hence transaction fees come on top of the work conducted in connection to this transaction. Section 2b is an example of the

monitoring fee being the greater of a fixed amount and a fraction of EBITDA. In this case, monitoring fees has a call option component.

Less common is the fact that the rate charged for ‘subsequent fees’ is not specified in section 2c. Instead the amount to be charged is kept flexible: it is what ‘internationally-recognized investment banks’ would charge. The termination fee is rather complex and subjective as it includes an estimate of fees that would have been received absent termination.⁶ It seems difficult at the time of contract termination to know how many and how much post acquisition fees would have been charged going forward for example. Similarly, it is difficult to reliably forecast future EBITDAs.

The sections relating to fiduciary duties (5b and 6) are more extensive than in the previous two MSAs. These sections list several potential conflicts of interest and bind the company (and related parties) not to hold GPs liable for any of their other activities (except ‘wilful misconduct’). All people signing this MSA are GP employees (Anthony Civale works for Apollo).

West Corporation (Appendix B4)

The agreement was entered on October 24, 2006. The TEV is \$3.3 billion, and it is similar to the others. The expense section mentions first-class air fare or charter (i.e. private jets). It lists expenses that can be claimed by the GPs and lists all the expenses related to the transaction (i.e. payments to advisors, accountants, lawyers etc). One distinguishing element is that the termination fee is the present value of monitoring fees for seven years irrespective of when the contract comes to an end. Hence the MSA could stop after nine years and there would be seven years’ worth of fees still to be paid. An IPO for that company actually occurred in March 2013, seven years after acquisition, meaning that the private equity firms received 14 years of monitoring fees on that investment.

Simmons 1998 and 2003 (Appendix B5 and B6)

Fenway acquired Simmons in October 1998. What is referred to as ‘management fees’ here are what we label ‘monitoring fees’. Monitoring fees are pegged to net sales and charged for the standard ten years, but with no termination fees. In 2003, TH Lee acquires 80% of the shares of Simmons from Fenway (Fenway keeps 10% and management has 10%). TH Lee is the sole beneficiary of the MSA and this MSA has the same specificities as that of West Corporation: e.g. the termination fee computed as the present value of seven years of monitoring fees. Hence, this 2003 Simmons MSA is different from the 1998 Simmons MSA but similar to West corporation MSA. This is a first indication that GP characteristics may be more important than company characteristics in determining the content of MSAs.

⁶ “...a lump-sum amount equal to the net present value of the remaining Transaction Fee, the Monitoring Fee, the Subsequent Fee (...) using an annual discount rate equal to the then-current rate of interest on the Company’s revolving credit facility, and assuming that EBITDA would have grown at a rate equal to the greater of (x) 6%, compounded annually and (y) the compounded annual EBITDA growth rate for the last two completed fiscal years.”

Summary of MSA content

Management Service Agreements (MSAs) set out the terms and conditions by which a company agrees to pay service fees and out-of-pocket expenses to an equity sponsor (GPs) in connection with a Leveraged Buy-Out (LBO). The structure of MSAs is similar across GPs. GPs receive fees for broadly defined services. Those services are the usual ones provided by GPs and for which LPs pay management fees. No minimum amount of work is required. In about 10% of the cases monitoring fees are related to performance (growth in EBITDA, or sales; see Appendix Table 1). Half of the MSAs last for ten years and when a termination rule is specified it usually states that the present value of fees until contract expiration are to be paid (Appendix Table 1). In addition, executives agree not to sue GPs in case of conflicting interests or unsatisfactory provision of services. GPs can terminate the MSA unilaterally and receive the fees that would have been paid absent termination. In club deals, fees are split in proportion of equity ownership and not on how workload is split.

Executives/Companies refund transaction costs and business expenses that GPs deem reasonable. There lies a subtlety: some GPs may consider their ‘internal costs’ to provide services as an expense that is refunded as such; transaction and monitoring fees are then a pure mark-up.

MSAs state that several GP initiatives trigger an additional fee payment (‘post acquisition fees’); it is left to the discretion of GPs.⁷ Note also the potential for indirect fees such as GPs hiring a law firm for the company at a premium price and receiving a kick back from the law firm.⁸

Although beyond the scope of this paper, we note some puzzling content in the MSAs. In the case of HCA, a selling family obtains a significant transaction fee while not having the internal capacities to carry the type of investment banking services that the transaction fees are supposed to cover. Similarly, co-investing LPs often get a significant share of transaction fees while having less internal investment banking capacities than GPs (if at all). In some secondary buyouts, the selling GP obtains a significant transaction fee, while most of the due diligence is a priori carried out by the buying GP. Finally, if any actual work done internally can be expensed, then by definition, fees do not compensate for work per se.

In a nutshell, transaction and monitoring fees appear to be ex-post discretionary compensation items; a fraction of these fees are refunded to LPs, but the amount is discretionary.

⁷ These additional payments may or may not trigger a rebate to LPs. E.g. in an SEC filing a GP called Riverside states that partners have invoiced portfolio companies for a range of services they have performed and these payments do not qualify for the rebate on portfolio company fees described in their LPA.

⁸ http://www.nytimes.com/2015/06/14/business/retirement/when-private-equity-firms-give-retirees-the-short-end.html?_r=2.

1.3. Related literature and hypotheses

Using a survey, Metrick and Yasuda (2010) are the first to provide magnitudes for transaction fees and monitoring fees. They do not express a particular judgement regarding these fees, and state that these fees are: ‘...just another way for BO funds to earn a revenue stream. While it may seem odd that funds are effectively paying themselves a fee to run companies that they own, the sharing rules with LPs can make this an indirect way for the LPs to pay the GPs for their services. From the perspective of the LPs, it should not matter whether these payments come directly through management fees or indirectly through monitoring fees, as long as the GP can create sufficient value to justify them.’ In this section, we draw from the literature in Finance, Law and Industrial Organization to derive a set of hypotheses.

MSAs as a solution to an optimal dynamic incomplete contracting problem

As pointed out by Adams, Hermalin, and Weisbach (2010), corporations are complex: to have any traction, a model must abstract away from many features of real-life corporations. This makes it difficult to understand the complex and multifaceted solutions of the principals’ problem. There may be a contracting model that can perfectly rationalize all the aspects of the MSAs. Here we mention a number of possible ‘optimal contracting’ explanations that we attempt to bring to the data but we would not claim to be comprehensive.

We begin with mechanisms studied in the Industrial Organization literature. The buyout industry seems to partly fit both the theories of three-tier hierarchies and the dynamic incomplete contract theories used in procurement contract design.

Three-tier hierarchy models feature a principal, a supervisor and an agent; in our context, the three tiers would be: LPs, GPs and executives respectively. Tirole (1986) points out that the analysis of hierarchical structures does not boil down to the compounding of basic agency costs due to the possibility of collusion via implicit or explicit side contracting between the agent and the supervisor, which he then introduces in a three-tier hierarchy model. The ensuing literature studies the conditions under which collusion may be beneficial, and when it is not, how to minimize the negative effects. MSAs fit well the definition of side-contracts in that literature but that literature does not allow for a repeated game setup. In addition, the literature focuses on asymmetric information and information manipulation by the supervisor and the agent in order to ‘fool’ the principal. As a result, most mechanism designs developed so far may not apply to our context.

An exception is the intuition developed by Itoh (1993) and Holstrom and Milgrom (1990) that side contracting may result in an efficient risk allocation between the supervisor and the principal, allowing principals to save on risk compensation. It seems plausible that LPs allow GPs to enter

MSAs in order to reduce the volatility of GP profits hence reduce GP income risk and that in turn allows LPs to pay GPs less on average.

The procurement literature in Industrial Organization may be more directly related to the problem at hand despite it featuring only two layers: a principal and an agent. This literature deals with incomplete contracting in a (long-term) dynamic setting and the central question is how to implement state contingent effort. The solution in this literature is often to have an initial minimal and standard contract (like the LPA) and then allowing for adaptation costs to be paid to the agent. MSAs could be viewed as such adaptation tools. If it becomes more costly to execute and monitor LBOs because of tighter credit conditions for example, then GPs can still perform optimally their task because the extra cost can be recouped via MSAs. Hence fees should be higher for riskier companies, and at times of higher LBO environmental complexity: e.g. times of high credit spreads (Axelson et al. (2013)), and lower risk premium (Haddad, Loualiche and Plosser (2016)).

In the private equity literature, the main model of security design (or fund design) is that elaborated by Axelson, Strömberg, and Weisbach (2009). The authors argue that the central friction between GPs and LPs is the incentives GPs have to engage in negative net present value projects once LPs have committed the capital. The reason is that GPs can be better off spending LPs cash commitments even when it slightly hurts returns. This effect is particularly severe when GPs get close to their five years investment deadline. Axelson, Strömberg, and Weisbach (2009) argue that lenders act as the ex-post gate keeper to prevent ‘GPs going for broke.’ They do not allow for the presence of MSAs in their model, but MSAs could significantly counteract GP’s incentive to invest in bad projects because they offer compensation that can be performance sensitive and is ex-post LP commitment time. An empirical implication is that portfolio company fees are higher when funds are closer to their investment deadline, i.e. when funds are older at the time of the LBO.

A recent literature analyzes the cross-section of management and carried interest fees charged across a large sample of funds. Robinson and Sensoy (2013) show empirically that funds with higher management and carried interest fees have higher gross-of-fees returns and similar net-of-fees returns compared to other funds. Similarly, Huther et al. (2015) show that GPs which use a more expensive carry structure (deal-by-deal instead of whole fund carry) have higher returns. From that stream of work, one may anticipate that GPs using extra layers of fees are those performing best. In a similar vein, we could think of ex-post discretionary fees as a way for GPs to fully capture the price for talent. Chung et al. (2012) argue that GPs capture their talent rent by raising larger funds: fees do not change but the basis goes up, hence profit goes up. This is reminiscent of the mechanism in the Berk and Green (2004) model. From this literature, we conjecture that it may be optimal to start with a standard and relatively low compensation and allow GPs to adjust compensation upward using portfolio company fees if and when GPs are successful. An empirical implication is that fees are positively and

primarily related to past and current performance of GPs. Yet, we could also have a negative and non-linear relationship between fees and current GP performance because ex-post fees can reset the incentives of GPs whose carried interest is ‘out-of-the-money’.

Monitoring fees described above could be seen as a layer of junior debt. In private equity the tension between debt-holders and equity-holders is mainly determined by the GP’s reputation with lenders (Demiroglu and James (2010), Ivashina and Kovner (2011), Hotchkiss, Strömberg, and Smith (2014), Malenko and Malenko (2015)). More reputable GPs obtain debt at a lower cost and could ‘afford’ to charge more portfolio company fees. Hence, monitoring fees should increase with GP creditor-reputation.

On the other hand, monitoring fees could be a commitment device used by low creditor-reputation GPs because they need to repay yearly coupons on senior debt first in order to receive regular monitoring fees. Similarly, they need to repay the senior debt in full in order to receive accelerated monitoring fees. In this case, less reputable GPs need to charge more portfolio company fees.⁹

In addition, if a company is in financial distress, it is well known that equity-holders have less incentive to work hard because the benefit of their work will primarily accrue to debtholders. With an MSA in place, supervisors have a sharp incentive to generate extra cash flows because they can be compensated for it (via increased monitoring fees for example).¹⁰ An empirical implication is that companies that are more at risk of financial distress pay higher fees, and that fees go up in times of high general financial distress.

Despite their variety, there are common predictions of these optimal contracting views. GP fund flows should be insensitive to the amount of portfolio company fees since LPs have no reason to sanction or reward GPs with a more or less aggressive fee policy. Under these optimal views, it is unclear why GPs would rebate any fees to their LPs. In fact, GPs should retain a significant fraction of the portfolio company fees they charge otherwise the benefits highlighted above would not materialize. We would also not expect any time cycles in the average fraction rebated.

Alternatively, these fees may be a wealth transfer and this is what we turn to next. As with any wealth transfer, a stakeholder must lose out and we identify three possible victims which we study in turn: tax authorities, LP supervisors, and LPs.

⁹ We thank Andrey Malenko for suggesting this possibility.

¹⁰ On the other hand, when the company is close to bankruptcy the supervisor could hold up principals (and debtholders) by taking all the cash from the agent as a fee; especially in situations where the supervisor may go out of business (and thus not raise a new fund, and not negotiate a new LPA).

Tax optimization

In *Tax Notes*, Polsky (2014) argues that monitoring fees lack compensatory intent and are, instead, dividends: ‘...monitoring fee payments are payments made by the portfolio company to benefit shareholders in their capacity as shareholders. While the private equity firm formally receives the monitoring fee payment, the private equity fund, which is the entity that holds shares in the portfolio company, receives all or nearly all of the economic benefit of the monitoring fees through management fee offsets. Thus, monitoring fees are non-compensatory payments that benefit shareholders, also known as dividends.’¹¹

In general, tax arbitrage could be a motivation for charging both transaction and monitoring fees. Under this view, GPs receive a special dividend at the time of investment inception (‘transaction fee’), when certain events occur (e.g. ‘fee for recapitalization’, ‘fee for asset disposal’, ‘termination fee’) and receive a regular annual dividend (‘a monitoring fee’). The regular dividend is either fixed, or expressed as a fraction of EBITDA which then resembles a ‘dividend yield’. These dividends are dressed up as ‘services fees’ in order to be treated as an expense by the company, hence be tax deductible (see Appendix A). LPs benefit as long as the rebate is high enough and the part of the fees that is not rebated can be seen as the compensation of the GP for intermediating this tax saving.

We derive some empirical implications from this tax arbitrage view. All else equal, GPs that charge more fees offer more tax savings, and therefore should have higher returns and attract higher subsequent capital flows from LPs. In addition, more fees should be charged when companies have positive earnings and tax payments because the tax savings are then immediate (rather than carried forward). This prediction should hold both in the time-series (at times of larger corporate profits) and in the cross-section. Finally, GPs should rebate at least 60% of the fees to LPs as the maximum marginal corporate tax rate is 40%.

Fooling LP supervisors

As pointed out by Lakonishok, Shleifer, and Vishny (1992), LPs have a wide range of supervisors; it may include regulators, board of trustees, government. By charging fees directly to portfolio companies and reducing LP management fees, GPs affect the metric by which LP supervisors judge LP staff. LP staff usually work for a private equity department and compete with other departments for capital allocations (and mandate restrictions) by LP supervisors. Because past performance is a noisy signal of future net-of-fees performance, LP supervisors look at other metrics such as expense ratios. Arguably, private equity is the asset class with the highest fees and LP staff may want this fact to be minimized. Perhaps coincidentally, it is quite rare for LP staff to include carried interest in their reported expense ratios. Also, most LP staff report management fees paid, which is less than *effective*

¹¹ Polsky (2014) bases his conclusions on the analysis of a typical MSA. He focuses on monitoring fees and commentaries in the press by practitioners generally approved of his view.

management fees because of i) management fee waivers, whereby management fees are waived and get added to carried interest instead; and ii) management fee offsets for portfolio company fees. Hence, the more portfolio company fees are charged, the lower the management fee *paid* are and the lower the reported expense ratios are. In one of the first media articles covering portfolio company fees, in 2011, this rationale was provided by an anonymous LP to *The Economist* who was wondering why LPs would accept portfolio company fees and in particular what the point of a portfolio company fee was if the rebate was 100%.

Empirically, LPs with less sophisticated principals should be keener on portfolio company fees. Perhaps by definition, fund-of-funds are the LP with least knowledgeable principals and we can measure the fraction of fund-of-funds invested in different GPs.

Tunneling LPs

MSAs might fit the description of *tunneling* as defined by Johnson et al. (2000) as the “transfer of resources out of a company to its controlling shareholder (who is typically also a top manager)” and most specifically their definition of tunneling via “self-dealing transactions.” In other words, portfolio company fees could simply be cash siphoned out of companies by GPs at the expense of LPs. GPs rebate some of this cash to LPs but keep part of it, the latter is what is being siphoned out.

Importantly, although the LP-GP relationship had been outside of the regulator prerogatives up until 2012, there are disciplining forces in addition to the standard protections offered by US common law code. Specifically, it is in the interest of the executive team and the lenders in each LBO transaction to limit cash transfers from the company to the GP; they should act as a gatekeeper when the MSA is negotiated, very much in line with the model of Axelson, Strömberg, and Weisbach (2009). In addition, the GP-LP interaction is a repeated game. LPs might later on notice those cash transfers directly (or indirectly, via lower than expected returns) and then reduce their capital allocations to GPs whose fees are deemed excessive.

The amount being tunneled would mainly depend on GPs’ marginal intertemporal rate of substitution, i.e. GPs’ patience. Patient GPs are less likely to tunnel cash as they value future fee streams more. Conversely, GPs under pressure to increase short term revenues should charge more. Other implications are that i) LPs should penalize GPs that are tunneling most, ii) fees are a policy of the GP and should therefore be persistent at the GP level, and iii) the effective rebate rate ought to be less than 100%. Moreover, effective rebate rate may slowly increase over time as information about these fees became gradually public with potential cycles as the bargaining power of LPs may be time-varying.

Other related papers

Kaplan and Strömberg (2003) show that venture capital contracts between GPs and portfolio company executives are close to those predicted by financial contracting theories. Kaplan and Strömberg (2004) argue that agency and hold-up problems are important to those contracts' design and monitoring, but that risk sharing is not. Cumming (2008) shows that stronger GPs' control rights increase the likelihood that an investment exits by trade sale.

Gompers and Lerner (1999) present the first study of LPAs. Metrick and Yasuda (2010) build a model to estimate the expected revenue to GPs as a function of their LPA for a large sample of funds. Litvak (2009) offers a legal critique of these agreements. Phalippou and Gottschalg (2009) compute the value of different fee arrangements based on observed private equity fund cash flows.

More broadly, our findings are related to Jensen's (1989) conjecture that interests are well aligned between all parties in private equity unlike in publicly listed companies. Axelson, Strömberg, and Weisbach (2009) show that the financial structure of LBO funds minimizes agency conflicts between GPs and LPs. Barber and Yasuda (2016), and Brown, Gredil, and Kaplan (2015) study whether GPs can fool LPs by manipulating net asset values when fundraising. Arcot et al. (2015) analyze the conflicting interests between LPs and GPs in the context of secondary buyouts. Outside of private equity, Cronqvist and Nilsson (2003) estimate the agency costs of controlling minority shareholders.

A large literature on 'collusion under asymmetric information' follows Tirole's (1986) work: e.g. Kofman and Lawarrée (1993), Khalil and Lawarrée (1995), Laffont and Martimort (1997), Faure-Grimaud, Laffont, and Martimort (2003), and Laffont and Martimort (2000). This literature focuses on collusive behavior between supervisors and agents where supervisors are auditors or regulators. The closest study in that literature is perhaps that of Celik (2009) who proposes that principals should contract with both the supervisor and the agent to manipulate the communication between the supervisor and the agent. In our context, LPs would offer GPs a monetary reward if the GP only signs MSAs that are approved by LPs ex-post.

Other related studies include that of GPs monitoring activities (e.g. Bernstein, Giroud, and Townsend (2014), Cornelli, Kominek, and Ljungqvist (2013), Celikyurt, Sevilir, and Shivdasani (2014)); operating performance improvements in LBOs (e.g. Cohn, Mills, and Towery (2014) and Guo, Hotchkiss, and Song (2011) for recent studies); shrouded attributes (e.g. Gabaix and Laibson (2006)); CEO fixed effects (e.g. Bertrand and Schoar (2003)); non-private equity investment funds' compensation structures (e.g. Tufano and Sevick (1997) for mutual funds; Goetzmann, Ingersoll, and Ross (2003) and Agarwal, Daniel, and Naik (2009) in hedge funds); executive pay, with a group of papers arguing that CEOs set up their own pay (e.g. Bebchuk, Cremers, and Peyer (2011), Hartzell and Starks (2003)) while others (e.g. Kaplan (2009)) disagree.

2. Data

Data source

Our sample consists of U.S.-based companies that went through a Leveraged Buy-Out (LBO) sponsored by a private equity firm, and that had to file with the Securities and Exchange Commission (SEC). Companies subject to an LBO must file with the SEC if they are publicly traded when targeted (so-called ‘public-to-private LBOs’), if they end their private equity sponsorship via an Initial Public Offering (IPO), or if they issue publicly traded debt. SEC filings are publicly available electronically since 1995.¹²

Our set of IPO-exited LBOs comes from the Cao and Lerner (2009) sample between 1981 and 2006, and then from Capital IQ from 2007 to 2013. The rest of our sample comes from Capital IQ: the list of public to private LBOs, and all the transactions classified as US LBOs with a TEV of \$10 million or more, excluding sponsor firms with less than five LBOs listed in Capital IQ, and selecting the sub-set of companies for which post-LBO EBITDA is available.¹³ In order to compare fees across companies, we need to scale them. In practice, transaction fees are expressed as a fraction of TEV. Requiring this information in Capital IQ reduces our sample by one third.¹⁴

SEC filers need to declare i) ‘material contracts’ such as credit agreements and MSAs, ii) previous fiscal year ‘related party transaction’ which describes any *non-arm’s length* fee agreement (if worth more than \$120,000), and iii) financial information for the preceding three years. These filings then provide annual information on portfolio company fees. The large amount of SEC filings, changes in company name, and the overall complexity of LBO transactions make the process tedious and non-trivial. We collected this information ourselves and spent an average of three hours per company. To illustrate the collection process, Appendix C shows in detail how we collected and codified the fees for the largest LBO in our sample.

Filings do not always cover all years from inception to exit of the LBO. For example, LBOs exited via IPO with no publicly traded debt are required to report fees only for the three years prior to the IPO. If the LBO is held for more than three years, we do not know whether an initial transaction fee has been paid. We exclude 112 such LBOs and end up with 592 LBOs in our sample. 140 of these 592 LBOs still have ‘incomplete’ fee information and the different cases are detailed in Appendix D.

¹² Based on the definitions set forth in Regulation S-K of the Securities and Exchange Commission.

¹³ The latter filter selects companies that had to file periodic statements with the SEC. In addition, we cross check with a sample of public to private transactions taken from Capital IQ as these transactions often have publicly traded debt. In addition, as Guo, Hotchkiss, and Song (2011) and Hotchkiss, Strömberg, and Smith (2012) also assembled datasets of LBO sponsored companies that filed with the SEC, we also use their data to cross-check ours.

¹⁴ We rescue 40 observations by using the ‘total asset’ value post LBO as reported by Capital IQ. When regressing TEV on total asset (in the sample for which both variables are available) we observe a unit slope and an R-square of 70%. This substitution thus appears reasonable.

Descriptive statistics: Portfolio Company Fees

We begin by analyzing key descriptive statistics drawn from the 454 LBOs with ‘complete’ fee information, i.e. they are exited and had to report to the SEC their related party transactions from investment inception to end. We distinguish between five fee categories. As described in the previous section, the LBO transaction fee is for ‘financial advisory services and capital structure review’ in connection with the acquisition of the LBO target company. Similarly, transaction fees may be charged when GPs sponsor an add-on acquisition for that LBO target company (the latter being called a platform investment in this case). We label these fees ‘add-on transaction fees.’

Monitoring fees are charged to compensate for services broadly defined as ‘certain management, consulting and financial services’ made during the life of the investment. They are also sometimes referred to as advisory fees and are not contingent on services being actually carried out. We distinguish between the regular monitoring fees, i.e. those paid during the investment’s life, and the accelerated monitoring fees which are paid at exit (also referred to as ‘termination fees.’)

There are a number of additional portfolio company fees. Appendix E shows an exhibit taken from a private equity workshop at CalPERS. Next to transaction and monitoring fees, they list director fees which compensate for serving as directors on the board of portfolio companies. As they are a priori arms’ length related party transactions they do not need to be recorded in SEC filings. Next are commitment fees, financial advisory fees, and capital market fees. These fees include the post-acquisition fees charged in connection with recapitalization, structural reorganization, dispositions of assets etc. which we covered in the previous section. The subset of these fees that fall under non-arms’ length related party transactions are reported and we recorded them as ‘other fees.’ The last type of fees mentioned is ‘break-up and topping fees.’ We do not see them in SEC filings. It is unclear how these fees are charged: they may be rolled up in the transaction fees of successful acquisitions and thus indirectly recorded as transaction fees.

The first line of Table 1 – Panel A shows that these different fees are not charged with the same frequency. The most frequent fee is the LBO transaction fee: only 25% of the companies do not pay it. However, only 16% of companies do not pay any of the fees.

The most controversial fee is probably the termination fee (a.k.a. accelerated monitoring): of these five types of fees it is the only type that generated a fine from the SEC (as of 2015). We observe that as many as 72% of the LBOs do not charge any termination fees. Interestingly, the majority of MSAs do have a provision for termination fees, which means that GPs voluntarily forego this fee in most cases. Overall, termination fees represent only 15% of the whole fee bill. Transaction fees represent nearly half of all fees (45% for LBO + 4% for add-ons).

< **Table 1** >

To put these fees into perspective we need to scale them by a measure of company size. Transaction fees and ‘other’ fees are often quoted as a function of TEV while monitoring fees tend to be annuities and/or a function of EBITDA. We use different measures of company size: TEV (including that of any add-on acquisition), total EBITDA generated during the life of the investment, total sales generated during the life of the investment, and the equity deployed by LBO funds in that transaction (again, including that of any add-on acquisition).¹⁵

Fees add up to 1.75% of TEV. The two transaction fees together represent 0.88% of TEV. The two monitoring fees together are of similar magnitude at 0.72% of TEV. Fees are about half when expressed as a function of sales and about twice as much when expressed as a fraction of EBITDA.¹⁶ Specifically, fees represent 3.6% of the lifetime EBITDA, i.e. about 1% of EBITDA per year (the average holding period is about four years). Interestingly, the relative transaction fees and monitoring fees both coincide with the lower bound of the range that Metrick and Yasuda (2010) gather via interviews: 1% to 2% for transaction fees, and 1% to 5% of EBITDA per year for monitoring fees.

Table 1 – Panel B shows the fees broken down per exit channel. Not surprisingly our sample is dominated by IPO-exits but we have many exits via sales (both to strategic buyers and financial buyers), and bankruptcies. In fact, our fraction of bankruptcies, both in number (15%) and value (19%), are close to those reported in the literature (Hotchkiss, Strömberg, and Smith (2012) estimate default rates at 17.9%).

All of the fees are virtually the same across exit types except for accelerated monitoring fees. Recall also that these fees are contentious because they represent a payment for services that will not occur. But IPO-exits are only partial exits. GPs stay involved with the companies past the IPO date. An explanation for the finding that GPs often forego charging this fee and for its mere existence (paying for a service that will not be rendered) is that GPs get paid at the time of the IPO for the monitoring they might continue to do afterwards. When the exit is not an IPO, monitoring stops and termination fees are hardly ever charged then.

Another interesting aspect is that LBOs that went bankrupt have the same transaction fees and regular monitoring fees as the rest of the sample. These LBOs were not a priori more burdened than other LBOs fee-wise. More generally, this indicates that there is no obvious cash transfer away from debtholders.¹⁷

¹⁵ For transaction fees, the correlations are, respectively, 90%, 68%, 57%, and 81%. For monitoring fees, the correlations are, respectively, 64%, 71%, 65%, and 58% (non-tabulated). This confirms the tight link between transaction fees and TEV (rather than equity deployed), and that monitoring fees is more loosely related to company size, but EBITDA is what is most closely related.

¹⁶ Investments being held on average for four years and TEV being about eight times yearly EBITDA, TEV is thus about twice as much as total EBITDA.

¹⁷ This is nonetheless a point of tension. There have been law suits where lenders have accused GPs of charging excessive fees prior to companies going bankrupt. E.g. Buffet’s restaurant law suit which was settled for \$28 million.

Table 1 – Panel C shows the fees broken down per year of LBO inception. Our sample is well distributed over time. About one third of the LBOs took place before 1998. In dollar terms however they represent only 17% of the sample. The 1999-2002 period was relatively cold for the LBO industry, the boom started in 2003-2004, accelerated in 2005-2006 and reached a peak in 2007-2008. What is striking is the consistency of the fees across these significant industry cycles: 1.74%, 1.65%, 1.91%, 1.86%, and 1.53%. We have only 19 LBOs that occurred post-crisis and fees seem higher due to high accelerated monitoring fees. Only accelerated monitoring fees and ‘other’ fees exhibit more of a cycle, and the cycles seem to be the opposite. Accelerated monitoring fees seem highest when other fees are lowest. Yet, there are no dramatic changes from one period to the next for either one of these fees.

The important take away from this panel is that although portfolio companies fees started to be widely discussed in the press and practitioner reports post-crisis, they have existed since as far back as we can get. They are not a phenomenon that appeared in the 2004-2008 boom before disappearing with the crisis. They have always been around and with similar magnitudes throughout.

Table 1 – Panel D lists companies that paid the most fees. The magnitudes seem large, with the top five companies alone paying a total of \$2.59 billion (in 2014 US dollars). At the top of this ranking is TXU which is also the largest LBO to-date. The fees total \$666 million even though it did not charge any termination fees, nor add-on transaction fees. Relative to TEV, it is below the overall sample average.

Three of these top five payers exited via an IPO (First Data Corp, HCA, Freescale Semiconductor). Harrah’s entered into an IPO too but only a small part of the company was floated. A few months later, it filed for bankruptcy. The rest of the LBOs in the ‘complete sample’ paid nearly \$12 billion in fees, bringing the total to \$14.5 billion. Note that all figures are brought to 2014 US dollars using the CPI index. Otherwise, we would be adding up say 1990-dollars with 2014-dollars. This has an impact on the overall amount. If we do not inflation adjust and simply add up numbers, relative fees are the same but absolute amounts are lower by about 15%. The simple sum of the fees for TXU for example is \$572 million.

Overall fee bill

We now add the ‘incomplete’ sample. This sample includes 58 LBOs that are not exited, hence their fee series is incomplete by definition. In addition, there are 80 LBOs that are exited but had to file with the SEC for only part of the investment period. Adding these 138 incomplete observations to form an augmented sample not only minimizes the loss of information on these partial fee time-series but also makes the sample more representative: most of these incomplete observations are not IPO-exited deals (that is why they are more likely to be incomplete.) Yet, we need to complete the time-

series of monitoring fees in that sample to avoid introducing a downward bias in fee estimates and the procedure is detailed in Appendix E.

Table 1 – Panel E shows that in the augmented sample of 592 observations, we have \$10 billion of transaction fees, \$8.1 billion of monitoring fees, and about \$1.5 billion of ‘other’ fees, bringing the total to nearly \$20 billion. The aggregated TEV is \$1.12 trillion (2014 dollars), which means that in this augmented sample fees are still about 1.75% of TEV.

The rest of the paper focuses on transaction fees and monitoring fees because we cannot impute ‘other’ fees for the part of the sample that is incomplete. In addition, although reported as ‘non-arms’ length related party transactions to the SEC, the ‘other’ fees are typically fees for clearly identified investment banking services. Notice that we do not record director fees, break-up fees, expense claims, and kick-backs from portfolio company suppliers. We label portfolio company fees as the sum of transaction fees and monitoring fees; but the actual portfolio company fees are more than what we report here.

Economic relevance: A back of the envelop calculation using CalPERS data

To put these fee amounts in context, we make a back of the envelop calculation using CalPERS data. By the same token, this exercise further illustrates some of the mechanics we introduced above.

As shown in Table 1 - Panel A, portfolio company fees represent 6.4% of the aggregate equity value invested by GPs on behalf of their LPs. CalPERS invested \$41.4 billion across private equity funds with vintage years 1991 to 2008, and would have then paid \$2.6 billion in portfolio company fees.¹⁸ As specified in LPAs, however, a fraction of these fees is rebated against the management fees due. How much is the average rebate rate?

Carlyle, KKR, Blackstone and Apollo – the four largest LBO firms – are publicly listed. They publish their revenue sources every quarter; a summary is shown in appendix Table 3. Two GPs report their average effective rebate rate. Apollo collected \$1.28 billion (between 2007 and 2012) and rebated 61% of this amount. KKR collected \$2.4 billion (from 2007 to 2014) and rebated 39% of this amount. We assume that the effective rebate rate for 1991-2008 vintage years is 50%, implying a rebated amount of $\$2.6 \text{ billion} * 50\% = \1.3 billion .¹⁹

We assume that the management fees *due* by CalPERS is 2% of capital committed for the funds first five years and 1% of half of the capital invested for another five years. We do not discount for simplicity, and obtain \$5.4 billion.

¹⁸ We obtain a similar estimate if we match funds in our database to the funds CalPERS invested in, using the amount charged by each fund, and the amount CalPERS invest in each fund.

¹⁹ Note that we do not have the rebate figures for Carlyle and Blackstone. Note also that the average maximum rebate rates reported in the Preqin Terms and Condition database is 80%. We do not know what rebate CalPERS effectively received but using 50% is also consistent with the difference between the management fees we estimated were due by CalPERS and those they reported to have paid.

The amount of management fees called by GPs would then be \$5.4 billion minus \$1.3 billion, i.e. \$4.1 billion. CalPERS current reporting system (and that of most other LPs) would record \$4.1 billion of management fees paid. Note that CalPERS provide the details of the management fees paid in its comprehensive annual report since 2003. The last fiscal year available is 2013, and over these eleven years, management fees paid add up to exactly \$4.1 billion.²⁰

CalPERS recently reported the carried interest paid on the sample of non-liquidated funds (\$3.4 billion of realized carry plus \$1.7 billion of unrealized carry). We estimate a carry for all 1991-2008 funds and find it to be \$5.3 billion. When we compare our estimate to the actual number reported by CalPERS for the overlapping sample, we are very close and thus confident this is a good estimate.

To sum up, CalPERS paid: \$4.1 billion of management fees, \$5.3 billion of carried interest, and (estimated) portfolio company fees of \$2.6 billion which they have not tracked so far. In comparison to the two widely known fees, portfolio company fees do not seem negligible for LPs.

Fees charged by the 'big-4' GPs

Fees reported by the four largest GPs may offer some further economic magnitudes and data cross checks (Appendix Table 3). Notice that GPs report fees differently compared to LPs. GPs report management fees *due* whereas LPs report management fees *paid* (i.e. after rebate). These four GPs earned collectively at least \$15 billion of carried interest, \$10.8 billion of management fees, and \$3.1 billion of *net* monitoring and transaction fees. If Blackstone and Carlyle would also rebate about 50% of the fees, the total amount of portfolio company fees charged to companies by these four GPs alone would be \$6 billion over the last 8 years. Coincidentally, the sum of the fees charged by these four GPs in our sample is \$5.8 billion.

Portfolio company fees are economically meaningful. We also see that Carlyle collects less portfolio company fees than the other three GPs; and that transaction fees are slightly higher than monitoring fees, consistent with our sample descriptive statistics.

< Table 2 >

²⁰ To be precise, one would need to add the years 2002 and before, plus year 2014, which has not been published yet, and subtract fees of vintage years 2009 to 2013; our estimate of the sum of this all is close to zero.

3. Fees and LBO characteristics

Descriptive statistics: LBO characteristics

Table 2 presents descriptive statistics for the sample of LBO transactions. The unit of observation is an LBO. On average, monitoring fees are about \$14 million and transaction fees are \$17 million. TEV (which includes that of any add-on acquisition), averages \$1.9 billion. The median is lower at \$711 million - this is due to some very large deals in our dataset (e.g. Energy Futures). As our LBOs have either issued public debt, went through an IPO, were public-to-private, or some combination of these events, they tend to be larger than average.

The rest of the descriptive statistics are in line with those shown in the literature and in practitioner reports, indicating that besides a tilt towards larger transactions, our sample is representative. Leverage averages 63%. The average holding period is 4.1 years with an interquartile range of two to six years. The average TEV to (Last Twelve Months; LTM) EBITDA ratio is 9.4 and the average Debt to LTM EBITDA is 6.2. These two figures are high, but in line with what is reported overall for large LBOs. The median LBO takes place in 2002. Hence our sample counts a large number of LBOs that occurred prior to the 2003-2008 boom. 37% of the LBOs have made add-on acquisitions. Importantly, we have 14% of the LBOs in our sample that file for bankruptcy. Although our sample is probably tilted towards better performing LBOs due to the 47% of IPO-exits, we have many LBOs that did not perform well. We also estimate a cash-on-cash (equity) multiple realized by GPs and find that it averages 2.83, with a median at 1.86, which is in the ballpark of what is reported in other studies; see e.g. Lopez-de-Silanes, Phalippou, and Gottschalg (2013).

Relative to TEV, monitoring fees are more widely distributed than transaction fees, but relative to EBITDA, it is the opposite. About half of the LBOs are club deals (i.e. have more than one sponsoring GP). On average there are 1.76 GPs sponsoring an LBO and together they own 86% of the equity. The rest is usually mostly owned by management. The amount of fees collected per dollar of equity intermediated by GPs is therefore higher than per dollar of TEV: nearly 4% on average for both monitoring fees and transaction fees.

The Constant Average Growth Rate (CAGR) per annum for both Sales and EBITDA is 17%, which is high but includes externally financed add-on acquisitions. Interestingly, the (present value of) Earning Before Tax (EBT) during investment life is negative on average. This is mainly due to debt interest payments. As a result, we also observe that the average (present value of) corporate taxes paid during investment life is nearly zero, i.e. there is as much corporate tax credit cumulated as tax paid overall. The benefits of further lowering corporate taxes using portfolio company fees is probably more limited than at first sight.

Regression analysis

We analyze the determinants of fees paid by a given company. Table 3 – Panel A shows results with the natural logarithm of monitoring fees as the dependent variable whereas Table 3 – Panel B shows results with the natural logarithm of transaction fees as the dependent variable. We therefore analyze absolute fee levels (in log) and use as independent variables (the log of the present value of) i) yearly EBITDAs generated during the life of the LBO; ii) debt raised (at LBO inception and thereafter); and iii) Total Enterprise Value (at LBO inception, plus add-on acquisitions).²¹ The rest of the ‘base’ control variables are those with a valid entry for each observation.

The first three specifications test whether fees are time dependent. Ex-post adaptation fees may be higher when it is difficult to execute and monitor LBOs because GPs need to exert more effort. The first specification introduces proxies for ‘difficult’ LBO times: level of credit spreads (Axelson et al. (2013)) and expected equity risk premium (Haddad, Loualiche, and Plosser (2016)).²² The second specification introduces a scaled measure of buyout activity (constructed by Haddad, Loualiche, and Plosser (2016), similar to that proposed by Kaplan and Strömberg (2009)). None of these three variables are statistically significant. To assess whether any alternative proxies for business or industry cycle could play a role, we introduce quarter of LBO-inception fixed effects in the third specification. The increase in R-squared is negligible.

Next we control for holding period and thus run the specification on the sub-sample of realized investments. Holding period is not statistically significant. This holds true when we control for the total EBITDA over the life of the investment. GPs charge fees as a function of the EBITDA each year and do not charge more or less depending on how long they hold the investment for. We also note that results are similar for the other explanatory variables even though we include only realized investments here.

The next three specifications introduce company characteristics discussed in the hypothesis section. We start with a dummy variable that is equal to one when Earnings Before Tax (EBT) is negative (and zero otherwise).²³ Although the tax benefits of monitoring fees are lesser when EBT is negative, we observe a positive and not a negative coefficient (albeit not significant).

²¹ We have also run this analysis with ratios: fees relative to TEV or EBITDA as a function of leverage ratio (Debt to TEV), buying multiple (TEV over EBITDA). Results are similar: company characteristics are not significantly related to fees charged.

²² We take the value of these variables in the quarter of investment inception. Results are similar if we use the average of these variables during the life of the investment. Alternative proxies for LBO cycles are not significant either. We used the spread between the ratio of EBITDA to Enterprise Value and high yield rate proposed by Kaplan and Strömberg (2009) to measure the expected return on LBOs. We used the VIX index which measures implied volatility from option prices, and the debt market overvaluation proxy of Harford, Martos-Vila, and Rhodes-Kropf (2014).

²³ We do not observe neither EBT or EBITDA during the investment’s life for 16 investments. For EBITDA the relationship with TEV is strong (over 90% correlation) hence we inferred the missing EBITDAs from TEV so that we do not lose these observations in the base specification. We cannot do it with EBT. This specification, therefore, also shows results if we exclude observations for which we inferred EBITDAs. Results are similar.

The sixth specification introduces EBITDA growth (realized during the investment), and finds that it is not statistically significant. As we may be concerned with reverse causality we also use the growth in EBITDA prior to the LBO and the ratio of TEV to EBITDA at LBO inception as a measure of expected growth. None of these variables are significant either (non-tabulated). To evaluate risk, we use EBITDA volatility and find that it is not statistically significant (EBITDA volatility prior to the LBO is not significant either; non-tabulated). We note that the amount of debt raised is never related to fees but it is unclear whether more debt is associated with higher risk.²⁴ Finally, in the last specification, we control for the estimated return on equity realized by GPs on their investment and find no relation.

Among the core control variables we note that EBITDA is strongly related to monitoring fees, but not TEV. More fees are charged if more GPs are investing in the LBO and there is a positive time trend in amount of monitoring fees charged.

Results in Panel B are overall similar. The main difference is that TEV is related to transaction fees. This was expected since these fees are often expressed as a function of TEV. More surprisingly is the significant positive relation with EBITDA. It means that at the time of LBO inception a higher transaction fee is charged on companies with higher anticipated EBITDA.

We conclude that fees are insensitive to business and industry cycles, and to fundamental company characteristics such as earnings growth and volatility. In non-tabulated results, we use other characteristics available in Capital IQ (e.g. transaction type: divisional buyout, public-to-private) and find that these variables are not significant either. We control for industry fixed effects throughout and the impact of these fixed effects on R-squared values is negligible (non-tabulated; we also used different measures of industry and obtain similar results). We also run these specifications with fee ratios as dependent variables: Monitoring fees to EBITDA, Transaction fees to TEV, Monitoring fees to Equity, Transaction fees to Equity. The results are overall similar.

Overall, proxies for LBO riskiness, difficulty to monitor, tax liabilities etc. do not appear to be related to amounts charged. This is *not* consistent with what either the ‘risk-sharing’ or the ‘tax’ hypotheses would have predicted. We now need to test the optimal contracting views that predict that it is GP characteristics that are key (e.g. past GP performance, GP reputation). Also the other two tunneling channels (principal tunneling and LP tunneling) are also predicting a strong GP fixed effect. Hence, we now investigate fees charged per GP in a given LBO.

< Table 3 >

< Table 4 >

²⁴ As suggested in, e.g. Gompers, Kaplan, and Mukharlyamov (2016), companies that are ex-ante *less* risky are financed with more debt during an LBO.

4. Fees and GP characteristics

Descriptive statistics: GP characteristics

When several GPs invest in a given LBO they do not all receive the same amount of fees. Transaction fees are often split according to ownership; it is less often the case for monitoring fees. There are on average 1.76 GPs invested in a given LBO and thus 1,044 observations of pairs of a ‘GP participating in an LBO.’ Descriptive statistics for this sample are shown in Table 4. GPs charge on average \$7.8 million in monitoring fees and \$9.6 million in transaction fees. We observe more zeros here, with more than 25% of the GP-LBO pairs having no monitoring fees (same for transaction fees). EBITDA and TEV are scaled by GP ownership so we can compute meaningful ratios at the GP level: monitoring fees to EBITDA and transaction fees to TEV. In addition, we construct the average (relative) fee charged by a given GP in prior LBOs. We have 375 unique GPs, hence the number of observations here drop by as much, down to 669.

We match our sample to the Preqin database that contains the size and vintage year of 22,675 private equity funds. We compute the amount raised by a given GP post-LBO and pre-LBO. Fundraising statistics cannot be computed for GPs that do not raise external capital (e.g. captive funds run by banks, LPs co-investing) and excluding these cases reduces our sample size by 27%. In addition, we match our sample to another Preqin database which contains performance data for about 7,328 private equity funds. Following Harris, Jenkinson, and Kaplan (2013), in the absence of detailed cash flow data, we use cash on cash fund multiple as a measure of fund performance: the sum of all distributions plus the residual value of ongoing investments in a fund divided by the sum of all of the capital invested, net of all fees for LPs (including monitoring and transaction fees, and reflecting any rebated amount). Pre- (*post-*) LBO GP performance is value weighted and includes funds raised by the GP over the preceding (*following*) ten years. The average multiple in our sample is 1.98 pre-LBO and 1.65 post-LBO; similar to statistics reported in the literature (e.g. Harris, Jenkinson, and Kaplan (2013)).

Next, we construct two important variables proposed in the literature. First, we compute a simple time-varying GP market share to proxy for GP’s reputation with lenders as suggested by Demiroglu and James (2010): the number of LBOs sponsored by that GP divided by the total number of LBOs observed over the past 36 months (using Capital IQ).²⁵ The average market share is small at 0.32%. Even the top quartile market share is only 0.43%. If we were to value-weight LBOs to compute market shares, the top quartile would be much higher. The main reason why researchers have not value weighted is probably the lack of TEV information for many LBOs.

²⁵ Hotchkiss, Strömberg, and Smith (2014) use GP age as a proxy for reputation – we use this variable as an additional control variable. Ivashina and Kovner (2011) use a more direct measure of GP reputation with lenders but it comes at the cost of manually matching another large dataset (Loan Pricing Connector).

Second, we compute a more general measure of GP (lack of) reputation, proposed by Barber and Yasuda (2016): this variable is equal to one if the GP does not have a top quartile fund in its track record, and zero otherwise. GP lacks reputation in 35% of the observations in our dataset.

We measure the amount of capital raised by each GP post financial crisis (vintage years 2009 to 2015) and the amount of capital raised over the ten vintage years preceding the crisis (1999 to 2008). On average the drop in fundraising between these two time periods is 48%. On the performance front, pre-crisis funds have on average a cash on cash fund multiple of 1.7 (value weighted).

Next, we merge in the Preqin LP dataset (as in Sensoy, Wang, and Weisbach (2014)): it contains about 30,000 unique pairs of LP investments into a given private equity fund. LPs are mainly pension funds, foundations and endowments, and fund of funds. This variable may help assess the ‘tunneling LP supervisor’ hypothesis: fund-of-fund supervisors are basically retail and small institutional investors and should therefore be least sensitive to fee salience.

Next, we use the Preqin database on private equity fund Terms and Conditions. This dataset contains the key items in the Limited Partnership Agreement (LPA) of 2,660 private equity funds. Of the 636 buyout funds in that dataset, 310 have information on the rebate rate applied to transaction fees (information is not available for monitoring fees). For the other 326 funds, nothing was mentioned about rebates which could mean that there is no rebate, or that the fund does not charge any portfolio company fees. As virtually all GPs charge some portfolio company fees, these missing observations probably correspond to zero rebates. Instead of assuming no rebate in those cases, we exclude these observations. In addition, there are many exceptions and rules for the calculation of the rebate, which further contribute to making the headline figure and our statistics an upper bound for the rebate rate. To reflect this situation we label the variable ‘maximum rebate rate for funds of that vintage and size.’ Importantly, the dataset is anonymous. As the rebate rate varies little among funds of the same vintage year and size category (defined by Preqin), we compute an average rebate for each group and assign that rate to each fund-LBO pair in our sample. On average the maximum fee rebate is 80%, while the interquartile range is 65% to 100%.²⁶

Finally, as in Acharya et al. (2013) we collect the biographies of the founding partners for each GP and record the fraction of these partners with graduate degrees (on average 69%), with a consulting background (on average 10%), and with an investment banking background (41%).

²⁶ We also have access to a proprietary dataset of 300 LPAs. 140 LPAs are for buyout funds investing in the US. Statistics on rebate rates in our proprietary dataset are consistent with those of Preqin; correlation is about 70%. We also have the LPA of 35 funds in our sample, covering about 60 LBOs, i.e. about 10% of our sample. This being a small sub-sample, we do not use it.

GPs selling their own company and change in fee policy

As is typical in the private equity literature, we lack a natural experiment to study causal behavior. Yet, there is an interesting and potentially relevant event we can study here: in 2007-2008, three GPs filed an S-1 form.²⁷ Blackstone filed an S-1 on June 21st 2007, KKR filed an S-1 on July 3rd 2007, and Apollo filed an S-1 form on April 8th 2008. In these forms GPs detail their fee income, including portfolio company fees, so that potential investors can value accurately the ‘GP.’

A large literature, starting with DeGeorge and Zeckhauser (1993), argues and shows empirically that the incentives of managers to report increased revenues in the three years prior to the IPO are “strong”. However, as modelled by DeGeorge and Zeckhauser (1993) the relationship between the decision to go public and an increase in fees might go the other way: those GPs that anticipated an unusual surge in fees decided to go public.²⁸ In other words, we need to separate out a timing story from a manipulation story.

First, we note that in our context, there are six GPs that are outstanding by their size and three of them ‘sell’ part of their shares while the other three do not (Bain Capital, Carlyle and TPG). In Table 5 – Panel A, we show that past performance and past capital raised are similar across these six large GPs. This is important because under the timing story, GPs who sold shares are those with superior reputation and this is what enabled them to both sell their shares and raise their fees. In other words, superior reputation is what causes both the selling event and a change in fees. In the private equity literature, reputation has been proxied by measures of past performance (e.g. Barber and Yasuda (2016)) and past deal volume (e.g. Demiroglu and James (2010)). Under these measures, the two sets of GPs seem very similar. This is a first indication that the validity of the timing argument is not obvious. Moreover, comments in the press at the time indicate that GPs had different underlying philosophies, rather than different market timing opportunities.²⁹

In our setup, we have an additional way to separate out the timing story from the manipulation story. An important aspect is that the two types of portfolio company fees should affect valuations differently. On-going ten-year fixed monitoring fee contracts have a larger impact on investment company valuations than one-time past transaction fees. The latter fees are non-recurring while the monitoring fees are future contractual obligations which will be paid. Under the manipulation story, unlike under the timing story, monitoring fees should increase more than transaction fees.

²⁷ The S1 form is an SEC filing used by companies planning on offering shares to the public to register their securities with the SEC as the "registration statement by the Securities Act of 1933."

²⁸ This hypothesis also requires that the market does not have perfect foresight regarding these fees because it would otherwise understand and price the trade-off between more fees now and more fees later. But we note that these fees were essentially unknown back then. There is no public information regarding these fees, they cannot be benchmarked against that of other GPs, whether they went up over time or not etc.

²⁹ A private equity firm core model is based on sharp managerial incentives based on concentrated ownership; a publicly traded GP is seen as an oxymoron by some observers and practitioners.

Table 5 – Panel B shows fees for LBOs executed prior to 2002 and for LBOs executed in 2003 or later (pooled observations per GP). In the first sub-period, the three selling GPs charged lower monitoring fees (except for GP 2) than the other three large GPs and charged a similar amount to the rest of the GPs. The same is observed for transaction fees.

Post-2003, we observe that monitoring fees (relative to EBITDA) increase by a staggering 80% for the three GPs that sell part of their own company. Their transaction fees also increase but more modestly: 32% overall. In contrast, two of the other three large GPs kept their monitoring fees constant. GP 4 had abnormal monitoring fees pre-2002 and then charged fees in line with the average post-2003.³⁰ The rest of the GPs increased monitoring fees relative to EBITDA by 35%. Transaction fees also increased for the GPs that filed an S-1 form: 32%, whereas other GPs decreased their transaction fees.

Even though the release date of the S-1 form is known, some preliminary S-1 forms were filled and circulated prior to this. In addition, we do not know when GPs took the decision to sell part of their company. This means that the event is not precisely dated. By default, as preliminary forms were filed in 2006 and the last three fiscal years of revenues are what is usually discussed in those forms, we compare fees charged by GPs up until 2002 with those they charged from 2003 onwards. In robustness tests, we use other break years (2004, 2005) and find similar results.

There are hypotheses other than the timing and manipulation stories that one can postulate. For example, GPs who prepare to sell their company suddenly start to monitor more and charge higher monitoring fees as a result. However, it is commonly believed that GPs are highly incentivized to work as much as possible via the earning of carried interest and fees from managing future large funds (see Chung et al. (2012)). It is difficult to think that GPs need outside shareholders to work harder. In addition, Table 5 – Panel A shows that we do not see much difference in performance between the two sets of GPs (except for GP 1). If the GPs that went public increased monitoring, it does not seem to trigger an increase in performance.

We acknowledge that the experiment is imperfect. Yet, we note i) the strong significance of the economic magnitudes; ii) the difference between monitoring and transaction fee changes; and iii) performance before and after the decision to sell shares seems to be the same. These three findings may indicate that GP patience plays a role in the determination of portfolio company fees. GPs that are under pressure to generate high income in the short run increase fees that are more discretionary and less salient.

< Table 5 >

³⁰ GP4 had large monitoring fees pre 2002 because of several quick flips: company was held for about one year then brought public and a termination fee was charged. Hence compared to one year of EBITDA these fees were large.

Regression analysis: Fees charged by a given GP

In this sub-section, we verify that the increase in fees for GPs that filed an S-1 form holds in a multiple regression setting. In addition, and more generally, we test the GP-based hypotheses described in section 1.3. The dependent variable is the fee charged by a given GP in a given LBO.

Table 6 Panel A shows the results for monitoring fees relative to EBITDA while Panel B shows the results for transaction fees relative to TEV.³¹ We scale monitoring fees by EBITDA because results in Table 3 indicate that monitoring fees are primarily related to EBITDA. Transaction fees are related to both EBITDA and TEV. Since in practice transaction fees are expressed as a function of TEV, we opt for the latter.

We begin by studying the cross-section of (scaled) monitoring fees; results are shown in Table 6 – Panel A. The first specification includes all the characteristics that are available for all the observations. Similar to what we find in Table 3, more monitoring fees are charged per GP when there are more GPs sponsoring the LBO. Perhaps surprisingly, GPs with a higher equity ownership in the LBO charge lower (not higher) monitoring fees. We also note the statistical significance of the dummy variable that is one if the GP made this investment after 2003 and has filled an S-1 form and is zero otherwise (labelled ‘GP going public’). This shows that the results in Table 4 hold in a multiple regression setting.

In the second specification, we introduce past fees charged by each GP, and the effect is very large. The coefficient is 0.75, the *t*-statistics near 7 and the R-squared doubles (35%). Importantly, in these regressions, we cluster standard errors at the GP level which decreases *t*-statistics compared to those obtained with other clustering choices (this is due to the GP-level persistence in fees).

The finding of a strong persistence in fee policy implies that GP characteristics drive differences in fees charged. We then introduce a set of GP characteristics. These characteristics are used to test empirically the series of GP-based ‘optimal contracting’ views described in section 1.3.

We begin with proxies for GP reputation (market shares, GP lack of reputation, GP age, amount of capital raised previously). We find that none of these four proxies are statistically significant. Results are the same if these four control variables are included one at a time. We also find that the age of the fund at the time of the investment is not significant either.

Next, we study founders’ backgrounds. The motivation here is twofold: i) Acharya et al. (2013) show that prior experience (being a consultant versus investment banker) has a material influence on the GP strategies;³² ii) monitoring fees may be related to ‘consultant’ type of work while transaction fees may be related to investment banking type of work, hence having prior experience in

³¹ In contrast to Table 3 we work with scaled fees. This is because we compare fees over time in several specifications. Since fees are related to measures of company size, we need to compare scaled fees rather than absolute fee levels.

³² Reduction in sample size forces us to drop the variable called GP going public as it is zero for most observations.

those fields may matter. We find that having partners with graduate degrees and a consulting background are both positively correlated with monitoring fees.

A set of variables related to GP past performance is added in the fifth specification. We use i) the average fund multiple generated on prior funds to measure past performance at the time of LBO inception; ii) a dummy variable that is equal to one if the fund investing in the focal LBO has an IRR above 8% to proxy for ‘GP is in the carry’; iii) the volatility of the multiple generated across previously raised funds as a measure of risk. None of these variables are significant. We tried multiple combinations (use of IRR instead of Multiple, change in fund weighting schemes, use only the performance of the fund that is invested in the focal LBO etc.) We also run these specifications with fee level as a dependent variable rather than scaled fees, and with each control variables included one at a time. Results are similar. Past and current performance measures are never significant.³³

Finally, we control for the fraction of fund-of-funds among the LPs of the focal GP. The motivation for this variable is that fund-of-funds have less knowledgeable principals (almost by construction) and therefore are less concerned about fee salience. We find this variable to be highly significant but we shall be cautious as there is no prior research ‘validating’ this explanatory variable.

Panel B shows the results for transaction fees. We find similar results. There is strong persistence in transaction fees, and transaction fees are unrelated to measures of GP reputation and past performance. There are two exceptions: i) older GPs charge less transaction fees; ii) GP with more volatile past performance charge higher transaction fees. GP background and fraction of fund-of-funds among LPs are not significant here. GPs going public charge higher transaction fees but it is not statistically significantly. This is consistent with the results in Table 4 and show again that GPs timing the market is unlikely to explain the hike in monitoring fees charged.

In non-tabulated results we also run F-tests for the statistical significance of fixed effects, as in Bertrand and Schoar (2003). We find that quarter, year, and industry fixed effects are all not jointly significant. In contrast GP fixed effects are highly statistically significant.

These results are at odds with the ‘optimal contracting’ views that relied on specific GP characteristics (past and current performance, fund age, etc.). The fraction of LPs that are fund-of-funds is only significant with monitoring fees. Hence the hypothesis on ‘tunneling LP supervisors’ is partly supported. A priori, all the results here are consistent with the ‘LP tunneling’ view. In order to further test this hypothesis, we now study the relation between capital flows and fee policy.

< Table 6 >

³³ In the last specification, we control for the maximum rebate rate offered by the GP to its LPs and find it to not be significant.

Regression analysis: Flow-Fee sensitivity analysis around time of LBO

We investigate the impact fee policy has on fund raising effort by GPs. This is a way to test whether LPs reward or penalize GPs that charge more fees. All of the hypotheses except the ‘LP tunneling’ one predict that GPs charging more portfolio company fees are not penalized by their LPs: capital flows should be either neutral or positively related to portfolio company fees. The ‘LP tunneling’ view predicts that LPs should react negatively to the extent that they observe these non-salient fees.

Table 7 shows the results of a multiple regression analysis where the dependent variable is the increase in capital raised pre- to post- LBO for a given GP. We find that the performance pre-LBO is strongly related to the change in capital raised. This is consistent with the literature: there is a strong flow-performance relationship in private equity (e.g. Robinson and Sensoy (2013)). None of the other explanatory variables are significant. In particular, fees do not matter. This result is robust to several changes in specification: e.g. we varied the post-LBO starting date (1 year, 2 years, etc. after LBO inception, or starting when the LBO is exited).

Evidence in Table 7 is consistent with LPs not minding these fees but it is not consistent with an LP-GP collusion to save on taxes. This evidence would not be consistent with the ‘LP tunneling’ view if LPs could observe these non-salient fees, or more generally found it too difficult to observe, measure and benchmark these fees.

Arguably, portfolio company fees became a point of tension and growing concern only after the financial crisis. Some press coverage and practitioner reports (e.g. from Preqin) mentioned that since fundraising suddenly halted, GPs could increase the amount of fees they charge to portfolio companies to compensate. The main association of LPs (ILPA) became vocal about these fees, asking that they should at least be 100% rebated to LPs. Newspaper coverage of these fees became more prevalent. The Dodd-Frank act included a provision for the SEC to investigate potential conflicts of interest in private equity, including an investigation of these fees. In a speech in May 2012, the SEC said it found violations of security laws for about half of the GPs under investigation. Two years later the SEC started to fine certain GPs. Appendix Figure 3 shows the Google trend time-series for ‘management services agreement.’ It is exactly zero all the way to November 2009, peaks then, and stays well ‘googled’ thereafter. We conjecture that from 2009 onwards, LPs and their own principals become widely aware of these fees. We can then study how fundraising post-crisis is impacted by past fee policy.

< **Table 7** >

< **Table 8** >

< **Table 9** >

Regression analysis: Flow-Fee sensitivity analysis around the Global Financial Crisis

As just mentioned, it is not until the aftermath of the financial crisis that portfolio company fees started to be mentioned in the media, that LPs started to coordinate actions related to these fees, and that the SEC started related investigations. The 2008 financial crisis may then offer an opportunity to measure LPs reaction to portfolio company fees becoming public information.

The results in Table 8 contrast with those in the preceding table. Both monitoring fees and transaction fees are consistently negatively related to the growth in capital raised. The cross effect between fees and distance to the crisis shows that GPs with low transaction fees closer to the financial crisis raised even more capital (all else equal). Hence GPs that charged high transaction fees in the earlier part of the sample and less so in the latter part of the sample are not as penalized on the fundraising front as GPs in the opposite situation. We also note that the rebate rate to LPs now matters too: GPs that rebate more raise more capital post crisis.

We still observe a strong positive relationship between growth in capital raised and past performance. Note also that in Table 8 (as in Table 7) we clustered standard errors at the GP level. This is fairly draconian as this effectively considers all observations from one GP to be unique. Other choices of clustering (e.g. a double clustering on year and GP, or year and portfolio company) lead to higher t-statistics.

The finding that higher fees coincide with significantly lower future fundraising is perhaps the result that is most difficult to reconcile with either the tax view or the optimal contracting view. LP's welfare is increasing in the amount charged in fees according to the tax view. In the optimal contracting view there should be no significant relationship. It is plausible that GPs who charged more were those facing challenges with their investments and that is why they raised less money going forward. Yet, the effect holds after controlling for past performance. Hence LP's reaction is beyond the effect of poor performance. It means that fees per se make LPs walk away from high-portfolio-company-fee GPs.

Although we found strong persistence in fees, it is possible that GPs that anticipate getting out of business just increase fees dramatically. That is, they syphon what is left on the portfolio companies' cash account. To test for this hypothesis, the fourth specification shows how changes in capital flows relate to a change in fee. We do not see any effect.

These results may feel 'black box' at this point. In addition, it is perhaps instructive to provide some economic magnitudes. Panel A – Table 9 lists the GPs with the lowest fees. These GPs have a total fee to TEV ratio below 1% and a total fee to EBITDA ratio below 2%. In fact, there is a gap between these GPs and the rest of the GPs. The GP with the highest fees in this list is at 0.8% and 1.4%, while the next GPs (that are not on this list) are respectively at 1%, 1%, 1.1%, 1.2% (of TEV) and at 2%, 2%, 2%, 2.1% (of EBITDA).

The GPs listed here have all raised funds post-crisis. A few of these GPs raised significantly more post-crisis than pre-crisis and press coverage of these fundraising events indicate that these GPs are in high demand; we illustrate this in the columns to the right of the panel.

Panel B is clearly different. We list the top quartile GPs in terms of fees although anonymized. It is important to bear in mind that this list is indicative rather than definitive. A number of assumptions are made to reach a per GP figure, the total fee ratio also somewhat varies as a function of the scaling choice. We choose TEV and EBITDA based on our empirical results but other choices lead to slightly different rankings. Finally, we only have a subset of the investments made by a GP. There is significant persistence which gives some comfort that a sub-sample can provide a good proxy, but it is obviously noisy.

With these caveats in mind we observe that nearly half of these top fee quartile GPs did not raise a fund post crisis which basically means that they are out of business. Most of the GPs that did raise a new fund raised less than pre-crisis. There are nonetheless some exceptions. From the number of investments and TEV we see that none of the largest six GPs are part of this list. In particular, Blackstone which is the only GP fined by the SEC on monitoring fee practices, is not part of this list. GPs on this list tend to be small, and have low reputation.

We also note the wide dispersion in fees. GPs in Panel A charge close to zero whereas in panel B some GPs have charged more than 10% of EBITDA and some GPs have charged more than 5% of TEV. Moreover, the number of observations per GP and amount invested by GP in Panel B show that the large and most ‘famous’ GPs are not part of this list. This indicates that the SEC has not focused on GPs that charged extreme fees, but instead seems to have focused on ‘famous’ GPs.

Regression analysis: The rebate rate and other fee dimensions

The last empirical test we run is on the rebate policy. We use the 2014 Terms and Condition database of Preqin. As explained above, these rebate rates are upper bounds.³⁴

Table 10 – Panel A shows that the average maximum rebate rate is about 80% and has gone up significantly in 2011. From 2011 on, it stayed at about 85%. Table 10 – Panel B shows that there are basically three different rebate rates: nearly half of LPAs offer a 100% refund of portfolio company fees; about a quarter have an 80% refund and another quarter have a 50% refund.³⁵ It is somewhat puzzling that only three rates are used, but most puzzling is probably the high frequency of the 100% rate and, to a lesser extent, the 50% rate.

³⁴ We do not know the effective rebate rates except for GPs that are publicly listed and report it. KKR and Apollo seem to be the only GP in that case, and results are shown in Appendix Table 3.

³⁵ One quarter of the LBO funds in the database do not have a rebate rate mentioned. This can be because they do not refund any transaction and monitoring fees, or because they do not charge any.

100% refunds are difficult to explain for any optimal contracting theory. If GPs do not retain any of the fees charged to the agent, why would these fees be charged in the first place? None of the economic rationales we put forward can a priori explain a 100% rebate rate. A 100% rebate rate is most consistent with the first two wealth transfer views: tunneling of LP principals and tunneling of tax authorities. However, these rebate rates are upper bounds. There are sometimes many exceptions which make the effective rebated rate lower than what Preqin would record. If so, the other hypotheses cannot be rejected. In contrast, the tax view is difficult to reconcile with a quarter of the LPAs offering a maximum rebate rate of 50% because hardly any company has a marginal tax rate of 50% or more.

Table 10 – Panel C shows that LPAs with the highest rebate are those that are most ‘LP friendly’ on each of the other aspects of the fee contract: they are more likely to charge 2% or less management fees, have a hurdle rate of 8% or more, charge a ‘whole fund’ carried interest (instead of a ‘deal-by-deal’ one), and have an investment period of five years or less. If the 100% refund means that GPs do not get any compensation for their additional efforts then we would expect that GPs refunding fully portfolio company fees compensate by charging more of other fees. This is not what we observe. Ex-ante fees and discretionary ex-post fees are unlikely to be substitutes.

< **Table 10** >

Conclusion

From 2008 to 2014, the largest four private equity fund managers (called GPs) earned collectively \$16.5 billion of carried interest – a performance-related fee, \$10.8 billion of management fees – a fixed fee, and \$2.5 billion of fees labeled ‘net monitoring and transaction fees.’ In contrast to the former two sources of fees, monitoring and transaction fees are not well documented. In addition, these fees are contentious because they are charged by GPs to companies whose board is controlled by these same GPs. During the 2008 financial crisis the providers of capital complained about these fees and, as a result, many GPs announced they would refund 100% of these fees going forward. Does this mean that fees appeared right before the crisis and disappeared right after, making our research an anecdotal and historical case study?

First, at best 85% of these fees were rebated on average across GPs in 2011-2014. In addition, even when a refund of 100% is mentioned, the effective refund can be less because there are restrictions and further complications in those calculations which effectively reduce the rebated amount. Furthermore, we find that management service agreements contain more than just transaction fee and monitoring fee payment schedules. These agreements waive a number of GP fiduciary duties, and allow GPs to claim wide ranging and somewhat discretionary set of expenses. There are also several other fees that can be charged and that we have not included (e.g. break-up and topping fees).

In addition, this paper shows that these fees are commonplace and are not a new phenomenon. In fact from as far back as we can measure them, we see a similar amount being charged, irrespective of business cycles. Overall, nearly \$20 billion has been charged across 592 companies, representing 3.6% of all earnings (before interest, tax, debt and amortization) these companies generated while being under GPs control. Even if these fees were to be 100% refunded to investors going forward, we note that the amounts charged are economically relevant and significantly impact the finances of a large number of corporations. It is important to know why and when companies pay these fees.

Another potential take away from our work is that, perhaps coincidentally, it is not until the SEC started to look into these agreements that practice started to change. This would give credit to the controversial idea that regulatory intervention is necessary even when so-classified ‘sophisticated’ parties contract with one another.

In terms of more specific policy implications, our results indicate that the GPs that the SEC has targeted so far are more ‘big names’ than ‘worst offenders.’ The fines amounts are also not commensurate with the amount we report here. Therefore, it is either the case that these fees are accepted and no fine is expected, or that these fees are not accepted and the fines would be expected to be much higher. Moreover, accelerated monitoring fees are the fees that have attracted most regulatory and media attention. But we show that accelerated monitoring fees are only charged if and when companies go public. If monitoring fees are accepted practice then it is difficult to see why a fee charged at the time of the IPO which covers the monitoring of the GPs post IPO would not be accepted. In addition, we do not observe situations in which GPs just siphon all the cash flows out of portfolio companies via transaction or monitoring fees even when companies are in financial distress. More generally, we do not observe any tunneling of the type and nature documented in the literature for other industries and countries.³⁶ Perhaps, overall, market forces are at work.

Our study may also be of interest to a broader literature in industrial organization. The buyout industry seems well suited to study the three-tier principal-supervisor-agent model with supervisor-agent side contracting, originally devised by Tirole (1986). This literature is primarily theoretical and our paper offers a first large scale empirical study of a supervisor-agent side contract. Furthermore, these models are mainly developed in a static setting. In this paper, we show that in private equity, the repeated interaction between the supervisor and the principal influences the nature of side contracts. Our empirical analysis may then inform future three tier hierarchy models in dynamic settings.

There are many open questions still but hopefully, this first paper to study portfolio company fees and management service agreements will catalyze further research in this field.

³⁶ E.g. Jian and Wong (2010) in China; Baek, Kang, and Lee (2006), and Bae, Kang, and Kim (2002) in South Korea; Bertrand, Mehta, and Mullainathan (2002) and Siegel and Choudhury (2012) in India.

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Appendix A: Potential tax savings

For simplicity assume that a company was bought at the beginning of the year and sold at the end of the year. This transaction is sponsored by a GP. Assume as well that i) it costs 65 for the GP to perform its task (sourcing, monitoring and disposing of a given investment in a company); ii) that LPs hold 100% of the equity of the company and are tax exempt institutional investors; iii) that the company has a yearly earnings before taxes of 100; and iv) that the marginal corporate tax rate is 35%. Consider the following alternative arrangements:

Arrangement 1: LPs pay 65 of management fees to the GP. The company pays 35 of taxes and 65 is distributed to LPs as a dividend. LPs receive nothing, and the GP covers its cost, making zero profit.

Arrangement 2: GP charges 100 to the company for ‘acquiring it and monitoring it’ and has a fee rebating rule in place that rebates 65% of these ‘transaction and monitoring fees’ against management fees. LPs receive nothing. GP pays 35%*35 of taxes and obtains an after tax profit of 22.75. Company pays no taxes.

Arrangement 3: GP charges 81.25 to the company in ‘transaction and monitoring fees’ and has a fee rebating rule in place that rebates 80% of transaction and monitoring fees. LPs pay no management fees (because rebated amount is 65) and receive $65\% \times (100 - 81.25) = 12.2$ as a dividend. The GP makes a profit after taxes of $65\% \times (81.25 - 65) = 10.55$.

Arrangement 1 has no transaction and monitoring fees. Arrangements 2 and 3 have portfolio company fees and dominate arrangement 1 for LPs and GP. Tax authority loses out.

Note also that when LPs are foreign investors, they are subject to the foreign dividend withholding tax of 15%. The above mechanism avoids this tax and thus brings yet another tax advantage for LPs. Finally, and perhaps most importantly, the fee policy does not affect the selling value of the company even though selling values are closely related to EBITDA. The service fees are considered a non-recurring expense. In practice, monitoring fees are added back to the last twelve month EBITDA for the purpose of calculating the value of the company.

Appendix B1: Management Service Agreement of Energy Future Holdings

This letter serves to confirm the retention by Energy Future Holdings Corp. (the “Company”) of Kohlberg Kravis Roberts & Co. L.P. (the “KKR Manager”), TPG Capital, L.P. (the “TPG Manager”), Goldman, Sachs & Co. (the “GS Manager”) and together with the KKR Manager and the TPG Manager, the “Managers” and each a “Manager”) to provide management, consulting and financial services to the Company and its divisions, subsidiaries and affiliates (collectively, the “Company Group”), as follows:

1. The Company has retained the Managers, and each Manager hereby agrees to accept such retention, to provide to the Company Group, when and if called upon, certain management, consulting and financial services of the type customarily performed by such Managers. Commencing on the date hereof (the “Effective Date”), the Company agrees to pay the Managers an aggregate annual fee (the “Advisory Fee”) in an amount equal to \$35,000,000 (thirty five million dollars), which amount shall increase by 2% annually (...). The Managers shall split the Advisory Fee so that (i) the KKR Manager shall initially receive a portion of the Advisory Fee equal to \$12,727,500 (twelve million seven hundred twenty seven thousand and five hundred dollars) (ii) the TPG Manager shall initially receive a portion of the Advisory Fee equal to \$12,727,500 (twelve million seven hundred twenty seven thousand and five hundred dollars) and (iii) the Goldman Manager shall initially receive a portion of the Advisory Fee equal to \$9,545,000 (nine million five hundred and forty five thousand dollars). Increases in the Advisory Fee in subsequent years shall be paid to the Managers in the same proportion as the initial Advisory Fee.

2. To the extent the Company is not permitted to pay the Advisory Fee by reason of any prohibition on such payment pursuant to the terms of any debt financing agreement or instrument of the Company or any of its subsidiaries, the payment by the Company to the Managers, of the Advisory Fee shall be deferred and shall not be due and payable until immediately on the earlier of (i) the first date on which the payment of such deferred Advisory Fee is no longer prohibited under the applicable agreement or instrument and the Company is otherwise able to make such payment, and (ii) total or partial liquidation, dissolution or winding up of the Company.

3. In consideration for structuring services rendered by the Managers and Lehman Brothers Inc. in connection with the acquisition of the outstanding shares of the Company by Parent pursuant to the Agreement and Plan of Merger, dated as of February 25, 2007, by and among Texas Energy Future Holdings Limited Partnership (“Parent”), Texas Energy Future Merger Sub Corp. and the Company (the “Merger Agreement”), which services included, but were not limited to, financial advisory services and capital structure review (the “Initial Services”), the Company agrees to also pay the Managers and Lehman Brothers Inc. a one-time transaction fee in an aggregate amount equal to \$300,000,000 (three hundred million dollars) (the “Merger Fee”), payable immediately upon the Closing (as defined in the Merger Agreement), which Merger Fee shall be apportioned so that (i) the KKR Manager shall receive a portion of the Merger Fee equal to \$106,840,909.09 (one hundred and six million eight hundred and forty thousand nine hundred and nine dollars and nine cents), (ii) the TPG Manager shall receive a portion of the Merger Fee equal to \$106,840,909.09 (one hundred and six million eight hundred and forty thousand nine hundred and nine dollars and nine cents), (iii) the Goldman Manager shall receive a portion of the Merger Fee equal to \$80,130,681.82 (eighty million one hundred and thirty thousand and six hundred eighty one dollars and eighty two cents) and (iv) Lehman Brothers Inc. shall receive a portion of the Merger Fee equal to \$6,187,500.00 (six million one hundred and eighty seven thousand and five hundred dollars).

4. The Company shall, with respect to each proposed transaction, including, without limitation, any proposed acquisition, merger, full or partial recapitalization, structural reorganization (including any divestiture of one or more subsidiaries or operating divisions of any member of the Company Group), reorganization of the shareholdings or other ownership structure of the Company Group, sales or dispositions of assets or equity interests or any other similar transaction (each, a “Transaction”) directly or indirectly involving the members of the Company Group, pay to the Managers an aggregate fee (a “Transaction Fee”) equal to 1% of the Transaction Value, or such lesser amount as the Managers and the Company may agree, any such Transaction Fee to be

apportioned so that (i) the KKR Manager shall receive a portion of any Transaction Fee equal to four elevenths of such Transaction Fee (ii) the TPG Manager shall receive a portion of any Transaction Fee equal to four elevenths of such Transaction Fee and (iii) the Goldman Manager shall receive a portion of any Transaction Fee equal to three elevenths of such Transaction Fee. The Company, on behalf of the members of the Company Group, may agree to pay a Transaction Fee in excess of 1% of the Transaction Value of a Transaction, subject to the consent of the board of directors of the Company. (...)

5. In addition to any fees that may be payable to the Managers under this agreement, the Company shall, or shall cause one or more of its affiliates to, on behalf of itself and the other members of the Company Group (subject to paragraph 6), reimburse the Managers and their affiliates and their respective employees and agents, from time to time upon request, for all reasonable out-of-pocket expenses incurred, including unreimbursed expenses incurred prior to the date hereof, in connection with this retention and/or transactions contemplated by the Merger Agreement, including travel expenses and expenses of any legal, accounting or other professional advisors to the Managers or their affiliates. The Managers may submit monthly expense statements to the Company or any other member of the Company Group (...)

12. This agreement shall continue in effect from year to year unless amended or terminated by mutual consent. In addition, in connection with the consummation of a Change of Control (as defined in the Partnership Agreement) or an IPO (as defined in the Partnership Agreement), the Company may terminate this agreement by delivery of a written notice of termination to the Managers. In the event of such a termination by the Company of this agreement, the Company shall pay in cash to the Managers (i) all unpaid Advisory Fees payable to such Manager hereunder, all unpaid fees payable to such Manager pursuant to Section 4 of this agreement and all expenses due under this agreement to such Manager with respect to periods prior to the termination date, plus (ii) the net present value (using a discount rate equal to the yield as of such termination date on U.S. Treasury securities of like maturity based on the times such payments would have been due) of the Advisory Fees that would have been payable with respect to the period from the termination date through the twelfth anniversary of the Effective Date (...) to be apportioned so that (i) the KKR Manager shall receive a portion of such fees equal to four elevenths of the aggregate amount of such fees (ii) the TPG Manager shall receive a portion of such fees equal to four elevenths of the aggregate amount of such fees and (iii) the Goldman Manager shall receive a portion of such fees equal to three elevenths of the aggregate amount of such fees. (...)

15. Each party hereto waives all right to trial by jury in any action, proceeding or counterclaim (whether based upon contract, tort or otherwise) related to or arising out of our retention pursuant to, or our performance of the services contemplated by this agreement. (...)

17. Except in cases of gross negligence or willful misconduct, none of the Managers (...) shall have any liability of any kind whatsoever to any member of the Company Group for any damages, losses or expenses (including, without limitation, special, punitive, incidental or consequential damages and interest, penalties and fees and disbursements of attorneys, accountants, investment bankers and other professional advisors) ...

If the foregoing sets forth the understanding between us, please so indicate on the enclosed signed copy of this letter in the space provided therefor and return it to us, whereupon this letter shall constitute a binding agreement among us. Very truly yours,

ENERGY FUTURE HOLDINGS CORP.

By: /s/ Jeffrey Liaw

Title: Authorized Signatory

By: Texas Energy Future Capital Holdings LLC, its general partner

By: /s/ Jonathan D. Smidt

By: KKR & Co. L.L.C, its general partner

By: /s/ Marc S. Lipschultz

By: Tarrant Capital, LLC

By: /s/ Clive Bode

By: GOLDMAN, SACHS & CO.

By: /s/ Kenneth A. Pontarelli

By: LEHMAN BROTHERS INC.

By: /s/ Ashvin Rao

Appendix B2: Management Service Agreement of Hospital Corporation of America

This Management Agreement (this “Agreement”) is entered into as of November 17, 2006 by and among HCA Inc., a Delaware corporation (the “Company”), Bain Capital Partners, LLC (“Bain”), Kohlberg Kravis Roberts & Co. L.P. (“KKR”), Dr. Thomas F. Frist, Jr., Patricia F. Elcan, William R. Frist and Thomas F. Frist III (each, a “Frist” and collectively, “Frist”) (“Frist”) and Merrill Lynch Global Partners, Inc. (...)

1. Services. Each of the Managers hereby agrees that, during the term of this Agreement (the “Term”), it will provide the following management, consulting and financial and other advisory services to the Company as requested from time to time by the Board of Directors of the Company: (a) advice in connection with the negotiation of agreements, contracts, documents and instruments relating to the Company’s financing; (b) financial, managerial and operational advice in connection with the Company’s business, including, without limitation, advice with respect to the development and implementation of strategies for improving the operating and financial performance of the Company and its subsidiaries; and (c) advice in connection with financing, acquisition, disposition, merger, combination or change of control transactions involving the Company (...) Each of the Managers shall devote such time and efforts to the performance of services contemplated hereby as such Manager deems reasonably necessary or appropriate; provided, however, that no minimum number of hours is required to be devoted by Bain, KKR, ML or each Frist on a weekly, monthly, annual or other basis. (...)

2. Payment of Fees.

(a) The Company will pay to the Managers(...)in consideration of the Managers providing the Financial Advisory Services, an aggregate transaction fee(“Transaction Fee”) in the amount of \$175,000,000(...)divided among the Managers as follows: Bain: \$48,611,111.11, KKR: \$48,611,111.11, ML: \$48,611,111.11, Frist: \$29,166,666.67

(b) During the Term, the Company will pay to the Managers (...)an annual fee (the “Periodic Fee”) of \$15,000,000, such fee to be increased annually at a rate equal to the Percentage Increase in Adjusted EBITDA over the previous year(...)in exchange for the ongoing services provided by the Managers under Section 1 of this Agreement(...)The Periodic Fee shall initially be divided among the Managers as follows: 3/15ths to Frist and 4/15ths to each of Bain, KKR and ML. The allocation of the Periodic Fee shall be appropriately adjusted in the event of any changes to the proportion of the number of Shares owned in the aggregate by each Manager (...)

(c) The Company will, for each financing, acquisition, disposition, merger, combination or change of control transaction involving the Company(...)pay to the Managers(...) an aggregate fee (the “Subsequent Fee”) in connection with each such transaction equal to one percent (1%) of the gross transaction value (...) Each Subsequent Fee shall be divided among the Managers in the same proportion as the Periodic Fee (...)

3. Term. This Agreement shall continue in full force and effect until December 31, 2016(...)this Agreement shall terminate automatically immediately upon the consummation of an initial public offering unless the Requisite Members determine otherwise. In the event of a termination of this Agreement, the Company shall pay each of the Managers(...) (ii) the sum of the net present values(...)of the Periodic Fees that would have been payable with respect to the period from the date of termination until the expiration date (...) The amounts described in clause (ii) above shall be divided among the Managers in the same proportion as the Periodic Fee (...)

4. Expenses; Indemnification. (a) Expenses. The Company will pay on demand all Reimbursable Expenses. As used herein, “Reimbursable Expenses” means (i) all expenses incurred (...) in connection with such transactions (including, without limitation, all air travel (by first class on a commercial airline, by charter or by privately owned airplane, as determined by the party seeking reimbursement) (...)) (b) Indemnity and Liability. The Company will indemnify, exonerate and hold each of the Managers (...) free and harmless from and against any and all actions, causes of action, suits, claims, liabilities, losses, damages and costs and out-of-pocket expenses...

HCA INC.

By: /s/ R. Milton Johnson

Title: Executive Vice President and Chief Financial Officer

Appendix B3: Management Service Agreement of Harrah's Entertainment

This Services Agreement (the "Agreement") is entered into as of January 28, 2008, by and among Harrah's Entertainment, Inc., a Delaware corporation (the "Company"), Apollo Management VI, L.P., on behalf of affiliated investment funds ("Apollo Management"), Apollo Alternative Assets, L.P. ("Apollo Alternative," and, together with Apollo Management, "Apollo") and TPG Capital, L.P. ("TPG," and, together with Apollo, the "Managers"). (...)

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties hereto, intending to be legally bound, hereby agree as follows:

1. Services. Each Manager hereby severally agrees that, during the term of this Agreement (the "Term"), it will provide to the Company (...) from time to time, management, advisory and consulting services in relation to the affairs of the Company (...). The Managers (...) will devote such time and efforts to the performance of the services contemplated hereby as the Managers deem reasonably necessary or appropriate; provided, however, that no minimum number of hours is required to be devoted by the Managers or the Manager Designees on a weekly, monthly, annual or other basis. (...)

2. Payment of Fees.

(a) As consideration to the Managers for their agreement to render the services in Section 1, (...), the Company will pay to the Managers (...) an aggregate transaction fee equal to \$200,000,000 (two hundred million dollars) (the "Transaction Fee"). (...) In addition to the Transaction Fee, (...), the Company will pay to the Managers (...) an amount equal to all out-of-pocket expenses incurred (...) including, without limitation, (i) the reasonable fees, expenses and disbursements of lawyers, accountants, consultants and other advisors that may have been retained by the Company and/or any Manager or its affiliates and (ii) any fees (including any financing fees) related to the Merger (all such fees and expenses, in the aggregate, the "Covered Costs").

(b) During the Term, the Company will pay to the Managers (...) an annual monitoring fee equal to the greater of (x) \$30 million and (y) 1.0% (one percent) of the Company's EBITDA (as defined below) (the "Monitoring Fee") as compensation for the services provided by the Managers or the Manager Designees under this Agreement, (...)

(c) During the Term, in addition to the fees paid pursuant to Section 2(b), the Company will pay to the Managers (...) an aggregate fee (the "Subsequent Fee") in connection with the consummation of any financing or refinancing (equity or debt), dividend, recapitalization, acquisition, disposition, spin-off or split-off transactions involving the Company (...) equal to customary fees charged by internationally-recognized investment banks for serving as a financial advisor in similar transactions

4. Term. This Agreement will continue in full force and effect until the last day of the quarter in which the tenth anniversary of the consummation of the Merger occurs; (...) (x) this Agreement may be terminated at any time upon unanimous consent of the Managers and (y) this Agreement shall terminate automatically immediately prior to the earlier of (i) an Initial Public Offering (...) or (ii) (...) (any such sale transaction, a "Sale"), in each case, unless otherwise agreed by both Managers, (...) Apollo and TPG shall be released from any and all obligations and liabilities with respect to provision of the management, advisory and consulting services pursuant to this Agreement (...) Company shall pay to each Manager (...) a lump-sum amount equal to the net present value of the remaining Transaction Fee, the Monitoring Fee, the Subsequent Fee or any other fees pursuant to this Agreement owing and payable by the Company to such Manager (or its Manager Designees) from the date of such Initial Public Offering or Sale, as the case may be, until the expiration of the term of this Agreement (which amount shall be determined using an annual discount rate equal to the then-current rate of interest on the Company's revolving credit facility, and assuming that EBITDA would have grown at a rate equal to the greater of (x) 6%, compounded annually and (y) the compounded annual EBITDA growth rate for the last two completed fiscal years) (...)

5. Expenses; Indemnification. (a) Expenses. The Company will pay to the Managers (or their respective Manager Designees) on demand all Reimbursable Expenses whether incurred prior to or following the date of this Agreement (...) all air travel (by first class on a commercial airline or by charter, as determined by the Managers or the Manager Designees) and other travel related expenses (b) Indemnity and Liability. The Company will

indemnify, exonerate and hold the Managers (...) free and harmless from and against any and all actions, causes of action, suits, claims, liabilities, losses, damages and costs and out-of-pocket expenses (...) arising out of any action, cause of action, suit, arbitration (...) provided that the foregoing indemnification rights will not be available to the extent that any such Indemnified Liabilities arose on account of such Indemnitee's willful misconduct; and provided, further, that if and to the extent that the foregoing undertaking may be unavailable or unenforceable for any reason (...)

6. Disclaimer and Limitation of Liability; Opportunities.

(a) Disclaimer; Standard of Care. None of the Managers nor any of their respective Manager Designee makes any representations or warranties, express or implied, in respect of the services to be provided by the Managers or the Manager Designees hereunder. In no event will the Managers, the Manager Designees or Indemnitees be liable to the Company or any of its affiliates for any act, alleged act, omission or alleged omission that does not constitute willful misconduct of the Managers or the Manager Designees as determined by a final, non-appealable determination of a court of competent jurisdiction.

(b) Freedom to Pursue Opportunities. In recognition that the Managers, the Manager Designees and their respective Indemnitees currently have, and will in the future have or will consider acquiring, investments in numerous companies with respect to which the Managers, the Manager Designees or their respective Indemnitees may serve as an advisor, a director or in some other capacity, and in recognition that each Manager, each Manager Designee and their respective Indemnitees have myriad duties to various investors and partners (...)

(i) The Managers, the Manager Designees and their respective Indemnitees will have the right: (A) to directly or indirectly engage in any business (including, without limitation, any business activities or lines of business that are the same as or similar to those pursued by, or competitive with, the Company and its subsidiaries), (B) to directly or indirectly do business with any client or customer of the Company or its subsidiaries, (C) to take any other action that a Manager or a Manager Designee believes in good faith is necessary to or appropriate to fulfill its obligations as described in the first sentence of this Section 6(b), (D) not to communicate or present potential transactions, matters or business opportunities to the Company or any of its subsidiaries, and to pursue, directly or indirectly, any such opportunity for itself, and to direct any such opportunity to another Person, and (E) to take any other action permitted pursuant to Section 6.02 of the Stockholders' Agreement or Article XII of the amended and restated certificate of incorporation of the Company.

(ii) Except as provided in Section 6(a), none of the Managers, the Manager Designees nor any of their respective Indemnitees will be liable to the Company or any of its affiliates for breach of any duty (...)

(c) Limitation of Liability. In no event will a Manager, a Manager Designee or any of their respective Indemnitees be liable to the Company or any of its affiliates for any indirect, special, incidental or consequential damages, including, without limitation, lost profits or savings, whether or not such damages are foreseeable...

IN WITNESS WHEREOF, (...)

HARRAH'S ENTERTAINMENT, INC.

By: /s/ Anthony Civale

Title: Director

By: AIF VI Management, LLC, its general partner

By: /s/ Laurie Medley

Title: Vice President

By: Apollo Alternative Assets GP Limited, its general partner

By: /s/ Laurie Medley

Title: Vice President

TPG CAPITAL, L.P.

By: Tarrant Capital, LLC, its general partner

By: /s/ Clive D. Bode

Title: Vice President

Appendix B4: Management Service Agreement of West Corporation

This MANAGEMENT AGREEMENT (this “Agreement”) is entered into as of October 24, 2006 by and among (i) Omaha Acquisition Corp. (“Newco”), a Delaware corporation, (ii) West Corporation, a Delaware corporation (the “Company”), (iii) Quadrangle Advisors II LLC, a Delaware limited liability company (“Quadrangle”), and (iv) THL Managers VI, LLC, a Delaware limited liability company (“THL” and, together with Quadrangle, the “Managers”).(...)

1. Services. Each of the Managers hereby agrees that it will provide the following consulting and management advisory services to the West Companies:

(a) advice in connection with the negotiation and consummation of agreements, contracts, documents and instruments necessary to provide the West Companies with financing on terms and conditions satisfactory to the West Companies;

(b) financial, managerial and operational advice in connection with day-to-day operations, including, without limitation, advice with respect to the development and implementation of strategies for improving the operating, marketing and financial performance of the West Companies;

(c) advice in connection with financing, acquisition, disposition, merger, business combination and change of control transactions involving any of the West Companies (however structured); (...) Each of the Managers will devote such time and efforts to the performance of services contemplated hereby as such Manager deems reasonably necessary or appropriate; provided, however, that no minimum number of hours is required to be devoted by the Managers on a weekly, monthly, annual or other basis. (...)

2. Payment of Fees.

(a) The West Companies, jointly and severally, will pay to the Managers (or such affiliates as they may respectively designate), in consideration of the Managers providing the Financial Advisory Services, an aggregate transaction fee (the “Transaction Fee”) in the amount of \$40,000,000 (...)

(b) During the Term, the West Companies, (...) will pay to the Managers (or such affiliates as they may respectively designate), an aggregate annual periodic fee (the “Periodic Fee”) of \$4,000,000 in exchange for the ongoing services provided by the Managers under this Agreement, (...) divided between the Managers pro rata in proportion to the respective ownership interests (...)

(c) During the Term, the Managers will advise the West Companies in connection with financing, acquisition, disposition and change of control transactions (...) and the West Companies, jointly and severally, will pay to the Managers (...) an aggregate fee (the “Subsequent Fee”) in connection with each such transaction equal to one percent (1%) of the gross transaction value of such transaction, and, in the case of an Initial Public Offering or a Change of Control (...) an amount equal to the net present value (...) of the Periodic Fees that would have been payable to such Managers (...) until the seventh anniversary of such transaction (...)

3. Term. This Agreement will continue (...) until December 31, 2016; (...)

4. Expenses; Indemnification.(a) Expenses. The West Companies will (...) pay on demand all Reimbursable Expenses. As used herein, “Reimbursable Expenses” means all (i) expenses incurred or accrued prior to the Closing Date by any of the Managers or their affiliates in connection with this Agreement, the Transaction or any related transactions, consisting of their respective out-of-pocket expenses for travel and other incidentals in connection with such transactions (including, without limitation, all air travel (by first class on a commercial airline or by charter, as determined by the appropriate Manager)(...)and charges of (A) Ropes & Gray LLP, (B) KPMG, LLC, (...)and (I) any other consultants or advisors (...) retained by the Managers in connection with such transactions(...)

THE COMPANY:

WEST CORPORATION

/s/ Thomas B. Barker

Name: Thomas B. Barker

Title: Chief Executive Officer

Appendix B5: Management Service Agreement of Simmons (1998)

This Advisory Agreement (this "Agreement") is entered into as of the 29th day of October, 1998 by and between Simmons Holdings, Inc., a Delaware corporation (the "Holdings"), Simmons Company, a Delaware corporation (the "Company") and Fenway Partners, Inc., a Delaware corporation ("Fenway"). WHEREAS, Fenway has provided advisory and other services to Holdings and the Company in connection with the acquisition by funds affiliated with Fenway (the "Fenway Funds") of Simmons Holdings, Inc. (the "Acquisition") and the senior secured financing (the "Senior Financing") being provided for the Acquisition pursuant to a credit agreement dated on or about the date hereof by Goldman Sachs Credit Partners L.P. as joint lead arranger and syndication agent (...) Holdings and the Company desire to retain Fenway to provide certain management and advisory services to Holdings and the Company, and Fenway desires to provide such services;(...)

1. SERVICES.(...) a. provide Holdings and the Company with advice in connection with the negotiation and consummation of agreements, contracts, documents and instruments necessary to provide the Company with senior secured financing from banks or other financial institutions or other entities on terms and conditions satisfactory to Holdings and the Company; and b. provide Holdings and the Company with financial, managerial and operational advice in connection with its day-to-day operations, including, without limitation: (i) advice with respect to the investment of funds; and (ii) advice with respect to the development and implementation of strategies for improving the operating, marketing and financial performance of Holdings and the Company.

2. PAYMENT OF FEES. The Company hereby agrees to: a. pay to Fenway (or its designee) a fee in the amount of five million, one hundred thousand dollars (\$5,100,000) and 379,119.069 shares of Class B Common Stock of Holdings in connection with the structuring of the Acquisition and the Senior Financing, together with reimbursement of Fenway's reasonable out-of-pocket expenses incurred on behalf of the Company through the closing date in connection with the Acquisition, such fees and expenses being payable by the Company at the closing of the Acquisition; b. during the Term, pay to Fenway (or its designee) management fees as follows (subject to adjustment as provided below): for the Term of this Agreement, for each fiscal year, an amount equal to 1/4 of 1% of net sales for the immediately preceding fiscal year or such other amount (or formula) as may be mutually agreed among Holdings, the Company and Fenway, (...) c. during the Term, allow Fenway to participate in the negotiation and consummation of any acquisition transactions by Holdings or the Company or any of its direct or indirect subsidiaries, and pay to Fenway (...) such customary fee as may be charged therefore by Fenway in connection therewith; provided, however, that in each case such fee shall not exceed the greater of (i) \$1,000,000 or (ii) one and one-half percent (1 1/2%) of the aggregate transaction value (including liabilities assumed);(...) d. in the event of an acquisition or series of acquisitions of another business or businesses (...) wherein the acquired entities or businesses have an aggregate enterprise value in excess of \$25,000,000, thereafter, if appropriate under the circumstances, pay to Fenway an increase to the management fees payable pursuant to Section 2(b) above as is mutually agreed by the Company and Fenway (it being agreed that the amount of any such increase will be negotiated in good faith between the Company and Fenway). e. in the event of an initial public offering of Common Stock of Holdings or the Company, the parties agree to negotiate in good faith any adjustments to the fee as may be customary and appropriate based upon market conditions and the participation of Fenway in the business, financings and acquisition of Holdings and the Company (including, if applicable the termination of the Agreement); provided, however, that, nothing contained herein shall require Holdings or the Company to pay Fenway the present value of future payments under this Agreement through the term of this Agreement or any other fee in respect of such termination or adjustment.(...)

3. TERM. This Agreement shall continue in full force and effect, unless and until terminated by mutual consent of the parties, for a minimum of ten years; and thereafter for so long as Fenway (...) continues to carry on the business of providing services of the type described in Section 1 above; (...)

4. EXPENSES; INDEMNIFICATION.

a. Expenses. (...) Holdings and the Company agree to pay on demand reasonable expenses incurred by Fenway and the Fenway Funds in connection with this Agreement,(...)(i) the reasonable fees and disbursements of: (A) Ropes & Gray, special counsel to Fenway and the Fenway Funds, (B) Ernst & Young, accountant to Fenway and the Fenway Funds, (...)

The Company:

SIMMONS COMPANY

By /s/ Zenon S. Nie Title: Chief Executive Officer (...)

Appendix B6: Management Service Agreement of Simmons (2003)

This Management Agreement (this "AGREEMENT") is entered into as of the 19th day of December, 2003, by and between Simmons Company, a Delaware corporation (the "COMPANY"), and THL Managers V, LLC, a Delaware limited liability company (the "SPONSOR"). WHEREAS, certain affiliates of Thomas H. Lee Partners, L.P. ("THL") have provided equity financing to the Company's indirect parent, THL Bedding Holding Company (...) THL Bedding acquired all of the outstanding shares of Simmons Holdings, Inc. (the "ACQUISITION"). WHEREAS, immediately following the Acquisition, THL Bedding merged with and into Simmons Holdings, Inc. and Simmons Holdings, Inc. merged with and into Simmons Company, with Simmons Company as the surviving entity. WHEREAS, the Sponsor has staff specifically skilled in corporate finance, strategic corporate planning, and other management skills and advisory services. WHEREAS, the Company will require the Sponsor's special skills and management advisory services in connection with its business operations and execution of its strategic plan. WHEREAS, the Sponsor is willing to provide such skills and services to the Company. NOW, THEREFORE, in consideration of the mutual covenants contained herein, (...) the parties hereto, intending to be legally bound, hereby agree as follows:

1. Services. The Sponsor hereby agrees that if, during the term of this Agreement (the "TERM"), the Company reasonably and specifically requests that the Sponsor provide the services set forth below and the Sponsor agrees to provide such services, the Sponsor or one of its affiliates will provide the following services to the Company and its subsidiaries: (a) advice in connection with the negotiation and consummation of agreements, contracts, documents and instruments related to the Company's finances or relationships with banks or other financial institutions; or (b) advice with respect to the development and implementation of strategies for improving the operating, marketing and financial performance of the Company, and other senior management matters related to the business, administration and policies of the Company. The Sponsor shall have no obligation to the Company as to the method or timing of services rendered hereunder, and the Company shall not have any right to dictate or direct the details of the performance of services by the Sponsor rendered hereunder. The parties hereto expressly acknowledge that the services to be performed hereunder by the Sponsor shall not include investment banking or other financial advisory services rendered by Sponsor or its affiliates to the Company in connection with any specific acquisition, divestiture, refinancing or recapitalization by the Company or any of its subsidiaries for which the Sponsor may be entitled to receive additional compensation by mutual agreement of the Company or its subsidiary and the Sponsor(...)

2. Payment of Fees. In exchange for the Sponsor's arrangement of the equity financing and agreement to provide the services set forth herein, the Company hereby agrees to pay to the Sponsor (...) the following fees:

(a) a transaction fee in connection with the transactions contemplated in the Stock Purchase Agreement payable at the Closing (as defined in the Stock Purchase Agreement) of \$20,000,000; and (b) a management fee (the "FEE") equal to the greater of (i) \$1,500,000 per year or (ii) 1.0% of Consolidated EBITDA (...)

3. Term. This Agreement shall be effective as of the date hereof (...) In the event that the Sponsor terminates this Agreement in accordance with clause (c) above of this Section, the Company agrees to pay the Sponsor a cash lump-sum termination fee equal to the net present value of the fees that would have been payable to such Sponsor (but for the termination hereof) pursuant to Section 2(b) hereof for a period of seven (7) years from the date of such termination calculated using a discount rate equal to the ten-year treasury rate on the date of such termination.

4. Expenses; Indemnification.

(a) Expenses. In addition to the fees set forth in Section 2 hereof, the Company agrees to pay on demand all reasonable costs and expenses incurred by the Sponsor and their affiliates or any of them in connection with this Agreement and in connection with performing services hereunder including but not limited to air travel charged at charter equivalent rates, legal, consulting, out of pocket and other expenses, including but not limited to the fees and disbursements of Weil, Gotshal & Manges LLP, counsel to the Sponsor, and any other consultants or advisors retained by the Sponsor or its respective counsel arising in connection therewith, including but not limited to the preparation, negotiation and execution of this Agreement, the performance of services hereunder (including, without limitation, fees and expenses of independent professionals, research, transportation and per diem costs) (...)

By: /s/ William S. Creekmuir, Title: Executive Vice President and CFO (...)

Appendix C: Data collection

To illustrate our data collection process we use the largest transaction in our sample: Energy Future Holdings (EFH) sponsored by KKR, Goldman Sachs (GS) and TPG. The MSA is shown in Figure 3 and was published as Exhibit “10 YYY” to EFH’s 10-K Annual Report filed on 03/31/2008. And can be found under:

<http://www.sec.gov/Archives/edgar/data/1023291/000119312508071313/0001193125-08-071313-index.htm>

Filings start at the LBO, and cover every fiscal year thereafter. We take the fee information from 10-K annual reports for the years 2007-2015. The reports can be downloaded from

<https://www.sec.gov/Archives/edgar/data/1023291/000102329113000003/efh-12312012x10k.htm>

Monitoring fees are split across GPs as specified in the MSA. For the other fees we specify below how they are split.

- 2007: \$300 million of transaction fees and \$8 million of monitoring fees (covering the period October 11 to December 31, 2007).
- 2008: \$35 million of monitoring fees including expenses
- 2009: \$36 million of monitoring fees including expenses
- 2009: \$750k to GS, \$260k to KKR, and \$260k to TPG for services as advisors and dealer managers in Note exchange offer transactions, and refinancing old notes with new Senior Secured Notes
- 2010: \$37 million of monitoring fees including expenses
- 2010: \$4 million paid to GS in connection with the issuance of new Senior Secured Notes, and \$7 million to GS for continued role as dealer manager and solicitation agent for the issuance of the Note Exchange Offers initiated in 2009
- 2011: \$37 million of monitoring fees including expenses
- 2011: \$17 million to GS as joint book-runner and joint lead-arranger of Senior Secured Loan facilities. \$5 million to KKR and \$5 million to TPG as advisory fees for these Senior Secured Loan facilities.
- 2011: \$13.5 million to GS as joint book-running manager and initial purchaser in the issuance of two Senior Secured Note tranches. \$800k to KKR, and \$800k to TPG as co-manager, initial purchaser and advisor for these two Senior Secured Note tranches.
- 2012: \$38 million of monitoring fees including expenses
- 2012: \$1.1 million to GS as dealer-manager and solicitation agent fees in Note offer exchange transactions. \$11 million to GS as joint book-running manager and initial purchaser in three separate Note offerings. \$4 million to KKR and \$4 million to TPG as co-manager, advisor and initial purchaser in those transactions.
- 2013: \$29 million of monitoring fees including expenses. From the fourth quarter of 2013, fees are suspended. Exact wording: “We had previously paid these fees on a quarterly basis, however, beginning with the quarterly management fee due December 31, 2013, the Sponsor Group, while reserving the right to receive the fees, directed EFH Corp. to suspend payments of the management fees for an indefinite period. Effective with the Petition Date, EFH Corp. suspended allocations of such fees to TCEH and EFIH. Fees accrued as of the Petition Date have been reclassified to liabilities subject to compromise (LSTC).”

EFH filed for Chapter 11 on April 29, 2014, six months after suspending fees. Note that EFH would successfully come out of chapter 11 then all of the suspended fees could be claimed by the GPs.

Annual monitoring fees contain expense reimbursements in this case, which is unusual. Given that the monitoring fees paid are in line with the amount specified in the MSA we assume that expenses are negligible and we simply record the above amounts as monitoring fees. When expenses are specified, we always deduct them. All the fees above other than transaction and monitoring fees are grouped under the heading ‘other fees.’

There is also a Related Party Transaction section in the 10-K filings which is dedicated to arm’s-length transactions performed with its sponsors. These transactions are not described in great detail because they are arm’s length (or worth less than \$120k) and we do not record them. Exact wording: “Affiliates of GS Capital Partners have from time to time engaged in commercial and investment banking and financial advisory transactions with EFH Corp. in the normal course of business (...) affiliates of GS are party to certain commodity and interest rate hedging transactions with EFH Corp. in the normal course of business. From time to time affiliates of the Sponsor Group may acquire debt or debt securities issued by EFH Corp. or its subsidiaries in open market transactions or through loan syndications.”

< Appendix Table 1 >

Appendix D: Imputed fees

Appendix Table 2 shows the different categories our observations fall into. First we have 371 observations that are exited and with full SEC coverage. Next, there are 83 observations in total that we classify as ‘complete’ because the missing information should not impact our fee estimates. This includes observations for which missing years are beyond the contractual duration of the fees; companies whose filings stop when they entered chapter 11 and when only the first or last year is missing.

More specifically, in all cases but two we observed that companies kept paying fees while in chapter 11 (among the cases where they kept filling with the SEC). Hence we assume that if they do not file but are in chapter 11 fees are zero and known. We could miss however fees charged when a company comes out of chapter 11 successfully but is not required to file anymore. In those probably rare cases, we would be underestimating the fees paid by these companies. We notice that the first and last year of an LBO, fees are either zero or pro-rata of the number of months the LBO was on. To be conservative we assume that in those years fees are zeros if this is the only missing piece of information on that deal.

The rest of the observations are classified as incomplete. There are 19 exited LBOs with filings missing only in their final years. For these we repeat the last fee charged until the final year of the LBO because we observe that monitoring fees are often constant over the life of an investment. The median change in monitoring fee from one year to the next is zero. We note that our imputed monitoring fee brings the total monitoring fee on these LBOs close to the transaction fee. Since these two fees are overall of the same order of magnitude, this may indicate that our assumption is reasonable. \$110 million gets added. Similarly, 13 exited LBOs have filings missing only in their early years. We operate as in the previous case and impute \$29 million of fees.

There are 50 LBOs for which we only have the MSA.³⁷ 47 LBOs are exited and 3 LBOs are not exited. We find that contractual monitoring fees and monitoring fees paid are highly correlated. In addition, the median contractual monitoring fees equal the amount charged (while the mean is 3% lower). We assume that the contractual amount of monitoring fees is charged in each year of the LBO life and that no termination fee was paid unless the MSA states that a given lump sum payment is made at termination (7 cases, total of \$45 million). \$454 million are added.³⁸

57 LBOs are not exited. We do not impute any fees except when there are missing fees before the end of our sample: \$186 million is added. Arguably, non-exited deals have a truncated time-series of fees and their fees are biased downwards. The bias may be small as all on-going deals are at least four years old and that we have consistently leaned on the conservative side for all fees recorded and imputed. If we use more aggressive assumptions for all incomplete cases (e.g. assuming they all charged a termination fee, on-going fees last until their tenth year) the total imputed would have been twice as much.

Appendix E: The different portfolio company fees

Transaction fees: Fees received by the advisor or its affiliates for transactions that are consummated by the fund with respect to a particular portfolio company.

Monitoring fees: Fees received by the advisor or its affiliates in consideration for general ongoing advisory services provided in respect of fund investments excluding, specific types of advisory services (e.g., financial advisory services, asset/property management services, capital markets advisory services, etc.).

Directors' fees: Cash and non-cash directors' fees received by the advisor or its affiliates in connection with serving as directors on the board of portfolio companies.

Commitment fees: Fees received by the advisor or its affiliates in consideration for making available equity or debt commitments in respect of fund investments, regardless of whether such commitments are actually utilized by the fee payor (e.g., a fee on unused amounts in a revolving credit facility).

Break-up and topping fees: Fees received by the advisor or its affiliates relating to a potential investment by the fund that was not consummated and, in the case of topping fees, to the extent the transaction is not consummated as a result of another bidder.

Financial advisory fees: Fees received by the advisor or its affiliates in consideration for advisory services rendered to the underwriting syndicate and other financial advisory services in respect of fund investments.

Capital markets fees: Fees received by the advisor or its affiliates in consideration for advisory services rendered by the capital markets group in respect of underwriting services and financial advisory services to the underwriting syndicate

Source: <https://www.calpers.ca.gov/docs/board-agendas/201511/invest/Workshop02-01.pdf> (slide 90)

³⁷ 10 of these LBOs are public to private transactions; the MSA is part of the S4 form they have to file in that situation. They did not issue public traded debt nor exited via an IPO. The rest are cases where the filings say: we paid fees according to the MSA. We impute these fees following the MSA but include them here as incomplete because we are not 100% certain of the amounts.

³⁸ Again, the sum of monitoring fees after this inference is close although lower than the sum of transaction fees.

Table 1: Portfolio Company Fees Charged

This table shows descriptive statistics for the five categories of portfolio company fees we collected data on: LBO transaction fees, which are charged at LBO inception; add-on transaction fees, which are charged when add-on acquisitions are made; regular monitoring fees, which are charged during the life of the LBO investment; accelerated monitoring fees, which are charged when the LBO investment is exited; and ‘other’ fees, which are charged during the life of the LBO investment and which comprise predominantly refinancing fees. TEV is the sum of the Total Enterprise Values of the original LBO and that of any add-on acquisitions all expressed in 2014 US dollars. ‘Sales during investment’ is the sum of yearly sales figures all expressed in 2014 US dollars, from LBO inception to exit. ‘EBITDA during investment’ is the sum of yearly EBITDA figures all expressed in 2014 US dollars, from LBO inception to exit. Equity ownership by GPs is equal to TEV times the sum of the ownership of all the GPs participating in the transaction. Statistics in Panels A to D are based on the ‘complete sample’ of 454 LBOs.

Panel A: Fee types and amounts

	LBO transaction	Add-on transactions	Regular monitoring	Accelerated monitoring	Other	All
Fraction of LBOs that are charged this fee	75%	19%	70%	28%	21%	84%
<i>Total amount of this fee charged as a fraction of</i>	-	-	-	-	-	-
Total fees	45%	4%	25%	15%	11%	100%
TEV	0.81%	0.07%	0.44%	0.28%	0.15%	1.75%
Sales during investment	0.26%	0.02%	0.14%	0.09%	0.05%	0.57%
EBITDA during investment	1.66%	0.15%	0.91%	0.57%	0.30%	3.59%
Equity ownership by GPs	2.87%	0.26%	1.56%	0.98%	0.52%	6.19%

Panel B: Fees per exit channel

	No. of obs.	TEV	Fee as a fraction of TEV					Total
			LBO transaction	Add-on transactions	Regular monitoring	Accelerated monitoring	Other	
Sale (strategic or financial)	68	154,668	0.82%	0.03%	0.49%	0.00%	0.10%	1.44%
Bankruptcy	133	194,899	0.73%	0.13%	0.40%	0.07%	0.15%	1.48%
Initial Public Offering	253	480,621	0.84%	0.06%	0.44%	0.45%	0.16%	1.95%
Total	454	830,188	0.81%	0.07%	0.44%	0.28%	0.15%	1.75%

Panel C: Fees over time (LBO inception date)

	No. of obs.	TEV	Fees as a fraction of TEV					Total
			LBO transaction	Add-on transactions	Regular monitoring	Accelerated monitoring	Other	
1990-1998	163	138,852	0.72%	0.25%	0.41%	0.16%	0.21%	1.74%
1999-2002	98	90,271	0.77%	0.10%	0.46%	0.19%	0.14%	1.65%
2003-2004	80	118,941	1.04%	0.02%	0.39%	0.38%	0.08%	1.91%
2005-2006	66	193,413	0.82%	0.06%	0.46%	0.40%	0.12%	1.86%
2007-2008	28	237,731	0.75%	0.01%	0.46%	0.16%	0.16%	1.53%
2009-2012	19	50,981	0.85%	0.01%	0.47%	0.58%	0.18%	2.09%
Total	454	830,188	0.81%	0.07%	0.44%	0.28%	0.15%	1.75%

Panel D: Companies that paid the highest fees

(millions of 2014 US dollars)	TEV	LBO transaction	Add-on transactions	Regular monitoring	Accelerated monitoring	Other	Total	As a fraction of TEV
Energy Future (fka. TXU)	51,733	349	0	238	0	79	666	1.29%
First Data Corporation	32,195	302	0	168	75	59	604	1.88%
Hospital Corporation of America	39,719	174	3	72	194	89	532	1.34%
Harrah's Entertainment	30,418	223	0	178	0	0	402	1.32%
Freescall Semiconductor	20,230	221	0	92	73	0	385	1.91%
Total	174,295	1,270	3	748	342	228	2,590	1.49%
Other companies	655,893	5,456	599	2,914	1,953	989	11,910	1.82%
Total	830,188	6,725	602	3,662	2,295	1,217	14,500	1.75%

Panel E: Total fee paid

(millions of 2014 US dollars)	No. of obs.	TEV	LBO transaction	Add-on transactions	Regular monitoring	Accelerated monitoring	Other	Total	As a fraction of TEV
Complete Sample	454	830,188	6,725	602	3,662	2,295	1,217	14,500	1.75%
Augmented Sample without imputed fees	592	1,116,411	9,209	707	5,051	2,425	1,491	18,884	1.69%
Augmented Sample with imputed fees	592	1,116,411	9,209	818	5,705	2,425	1,491	19,648	1.76%

Table 2: Descriptive Statistics – Sample of LBOs

This table shows descriptive statistics for the 592 LBOs in our sample. LBO debt is the total debt at the time of LBO inception. LBO TEV is the total enterprise value at the time of LBO inception. LTM stands for Last Twelve Months prior to LBO inception. GP's ownership is the fraction of equity owned by all the GPs who sponsor the LBO. EBT is Earnings Before Taxes. The ratio of TEV (*debt*) over EBITDA is computed only when LTM EBITDA is positive. Top 4 auditor is one if the main GP auditor is a top four accounting firm (source: Prequin). The table shows for each variable the number of observations, mean, 25th percentile, 50th percentile (median) and 75th percentile. Sales (*EBITDA*) CAGR is computed as Sales (*EBITDA*) in the year of LBO Exit divided by Sales (*EBITDA*) in the year of LBO inception to the power one over the number of years between LBO inception and exit. Volatility of Sales over total asset (*EBITDA over total asset*) is computed using the yearly ratios of Sales over total asset (*EBITDA over total asset*) figures between the year of LBO inception and year of LBO exit. EBT (*Corporation taxes*) is the sum of yearly EBT (*Corporation taxes paid, or credited*) figures, all expressed in 2014 US dollars, from LBO inception to exit.

	No. of obs.	Mean	St. Dev.	25 th	Median	75 th
Monitoring fees	592	13.73	29.70	0.23	4.46	12.41
Transaction fees	592	16.94	34.83	1.24	6.15	16.82
Total Enterprise Value	592	1,747	4,241	316	638	1,476
Total EBITDA during investment	592	977	2,481	156	366	883
Leverage (*100)	592	62.8	16.5	53.2	64.1	74.0
Holding period	526	4.10	2.74	1.95	3.40	5.97
TEV to LTM EBITDA	486	9.4	4.6	6.4	8.6	11.4
Debt to LTM EBITDA	481	6.2	4.6	4.0	5.6	7.4
Time trend	592	2001	5	1998	2002	2005
Add-ons (1/0)	592	0.37	0.48	0.00	0.00	1.00
Bankrupted (1/0)	592	0.14	0.34	0.00	0.00	0.00
IPO exited (1/0)	592	0.47	0.50	0.00	0.00	1.00
Estimated GP's return on equity	477	2.63	3.03	0.75	1.65	3.35
Transaction fees (% of TEV)	592	1.1%	0.9%	0.4%	1.0%	1.5%
Monitoring fees (% of TEV)	592	1.1%	1.2%	0.0%	0.7%	1.6%
Transaction fees (% of EBITDA)	592	2.4%	2.8%	0.4%	1.6%	3.4%
Monitoring fees (% of EBITDA)	592	1.9%	2.3%	0.1%	1.2%	2.6%
Club deal (1/0)	592	0.46	0.50	0.00	0.00	1.00
Number of GPs	592	1.76	1.05	1.00	1.00	2.00
Equity ownership by GPs	592	0.86	0.16	0.79	0.91	0.98
Credit spread	592	0.84	0.24	0.66	0.81	0.96
EBITDA/EV - High Yield spread	592	2.63	1.20	2.11	2.95	3.40
Sales CAGR	547	0.17	0.26	0.03	0.09	0.20
EBITDA CAGR	479	0.16	0.32	0.00	0.09	0.24
Volatility of Sales over Total Asset	530	0.16	0.14	0.06	0.12	0.24
EBITDA volatility	479	0.33	0.27	0.15	0.25	0.45
Top 4 auditor (1/0)	177	0.95	0.22	1.00	1.00	1.00
A GP employee is part of the PC signatures	296	0.39	0.49	0.00	0.00	1.00
Total EBT during investment	576	-175	1,708	-105	-2	65
Total EBT is negative (1/0)	576	51%	50%	0%	100%	100%
Total corporate taxes during investment	563	0.9	307.4	-4.2	8.5	40.1
EBITDA CAGR prior to LBO	424	0.18	0.30	0.01	0.12	0.27
EBITDA Volatility prior to LBO	448	0.44	0.32	0.18	0.36	0.59

Table 3: Deal Characteristics and Portfolio Company Fees

This table shows the results from OLS regressions. Standard errors are clustered by LBO years, and corresponding t-statistics are reported under each coefficient in italics. Each company is classified into one of the Fama-French 48 industries classification based on SIC code. 'a', 'b', and 'c' refer to statistical significance at the 1%, 5%, and 10% level respectively. Variables are as defined in Table 2. Panel A uses (log) Monitoring Fees as the dependent variable, while Panel B uses (log) Transaction Fees as the dependent variable.

Panel A: Regression results, (log) Monitoring Fees as Dependent Variable

EBITDA during investment (log)	0.52 ^a	0.50 ^a	0.50 ^a	0.42 ^a	0.53 ^a	0.44 ^a	0.52 ^a
	<i>7.08</i>	<i>6.29</i>	<i>6.41</i>	<i>4.15</i>	<i>6.51</i>	<i>5.13</i>	<i>6.40</i>
Total Enterprise Value (log)	0.14	0.08	0.07	0.19	0.07	0.39 ^b	0.26
	<i>0.90</i>	<i>0.43</i>	<i>0.40</i>	<i>0.95</i>	<i>0.41</i>	<i>2.30</i>	<i>1.57</i>
Debt raised (log)	0.04	0.06	0.07	0.01	0.05	-0.09	-0.08
	<i>0.39</i>	<i>0.47</i>	<i>0.50</i>	<i>0.10</i>	<i>0.37</i>	<i>-0.73</i>	<i>-0.67</i>
Equity ownership by GPs	0.48	0.48	0.48	0.48	0.42	0.29	0.29
	<i>1.44</i>	<i>1.23</i>	<i>1.24</i>	<i>1.26</i>	<i>1.05</i>	<i>0.72</i>	<i>0.85</i>
Number of GPs	0.13 ^b	0.13 ^b	0.13 ^b	0.14 ^b	0.12 ^b	0.09	0.16 ^a
	<i>2.26</i>	<i>2.22</i>	<i>2.22</i>	<i>2.42</i>	<i>2.25</i>	<i>1.63</i>	<i>3.18</i>
Bankrupted (1/0)	-0.29 ^c	-0.26	-0.26	-0.28	-0.27	-0.35 ^c	-0.37 ^c
	<i>-1.79</i>	<i>-1.54</i>	<i>-1.55</i>	<i>-1.63</i>	<i>-1.64</i>	<i>-1.77</i>	<i>-1.83</i>
IPO exited (1/0)	0.08	0.06	0.06	0.15	0.09	0.12	-0.01
	<i>0.91</i>	<i>0.59</i>	<i>0.59</i>	<i>1.26</i>	<i>0.90</i>	<i>1.06</i>	<i>-0.13</i>
Time trend	0.06 ^a	0.08 ^b	0.08 ^a	0.08 ^a	0.08 ^a	0.06 ^a	0.07 ^a
	<i>2.94</i>	<i>2.43</i>	<i>4.14</i>	<i>3.50</i>	<i>4.57</i>	<i>5.66</i>	<i>5.71</i>
Add-ons (1/0)	0.17 ^c	0.04	0.04	0.04	0.07	0.23 ^b	0.18 ^c
	<i>1.84</i>	<i>0.35</i>	<i>0.34</i>	<i>0.35</i>	<i>0.72</i>	<i>2.31</i>	<i>1.82</i>
Credit spread	0.16	0.27					
	<i>0.56</i>	<i>0.61</i>					
Equity risk premium	0.01	0.02					
	<i>1.04</i>	<i>0.46</i>					
Buyout volume (scaled)		0.00					
		<i>0.10</i>					
Total EBT is negative (1/0)					0.18		
					<i>1.57</i>		
Holding period				0.04			
				<i>1.53</i>			
EBITDA CAGR						0.05	
						<i>0.34</i>	
EBITDA volatility						0.08	
						<i>0.44</i>	
Estimated GPs return on equity							-0.02
							<i>-0.21</i>
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter of LBO inception Fixed Effects	No	No	Yes	No	No	No	No
Adjusted R-squared	0.41	0.43	0.44	0.43	0.45	0.43	0.44
Number of observations	592	592	592	526	576	479	477

Panel B: Regression results, (log) Transaction Fees as Dependent Variable

EBITDA during investment (log)	0.21 ^a	0.23 ^a	0.23 ^a	0.27 ^a	0.30 ^a	0.19 ^b	0.23 ^a
	2.93	2.79	2.83	3.32	2.67	2.29	2.87
Total Enterprise Value (log)	0.58 ^a	0.59 ^a	0.59 ^a	0.59 ^a	0.61 ^a	0.55 ^b	0.64 ^a
	3.16	2.81	2.87	2.87	2.75	2.33	2.70
Debt raised (log)	0.13	0.13	0.12	0.10	0.08	0.16	0.11
	1.00	0.92	0.87	0.72	0.56	1.00	0.72
Equity ownership by GPs	0.29	0.24	0.26	0.19	0.31	0.33	0.31
	1.30	0.90	0.94	0.69	1.12	1.34	1.52
Number of GPs	0.13 ^a	0.13 ^a	0.13 ^a	0.12 ^b	0.12 ^b	0.12 ^a	0.14 ^a
	3.03	2.70	2.65	2.54	2.52	2.70	3.50
Bankrupted (1/0)	-0.01	0.03	0.02	0.00	0.08	0.04	0.12
	-0.13	0.22	0.16	0.00	0.58	0.33	0.73
IPO exited (1/0)	0.10	0.08	0.06	0.12	0.06	0.15	0.11
	1.17	0.86	0.70	1.31	0.57	1.63	1.14
Time trend	0.02	0.03	0.00	0.00	-0.01	0.02	0.00
	1.05	1.00	-0.16	-0.23	-0.60	1.36	0.32
Add-ons (1/0)	0.40 ^a	0.31 ^b	0.32 ^a	0.35 ^a	0.34 ^a	0.41 ^a	0.41 ^a
	4.15	2.56	2.63	2.84	2.82	3.60	3.98
Credit spread	-0.28	-0.26					
	-0.96	-0.40					
Equity risk premium	0.01	0.00					
	0.66	-0.07					
Buyout volume (scaled)		-0.04					
		-1.15					
Total EBT is negative (1/0)				0.24 ^b			
				2.35			
Holding period					-0.03		
					-1.02		
EBITDA CAGR						-0.06	
						-0.42	
EBITDA volatility						0.13	
						0.76	
Estimated GPs return on equity							0.08
							0.79
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter of LBO inception Fixed Effects	No	No	Yes	No	No	No	No
Adjusted R-squared	0.52	0.52	0.52	0.54	0.51	0.54	0.56
Number of observations	592	592	592	576	526	479	477

Table 4: Descriptive Statistics of the GP-LBO Sample

This table shows the descriptive statistics of the GP-LBO sample. The unit of observation is a GP participating in an LBO. As there are 1.76 GPs on average across 592 LBOs, we have 1044 observations. We record the monitoring fee and transaction fee each GP earned in each LBO. For monitoring and transaction fees as a fraction of EBITDA (*TEV*), we use the amount per GP as the numerator; the denominator is total EBITDA (*TEV*) generated during the investment times GP ownership. We also record the average fees charged by each GP across all of their LBOs in our sample prior to the focal LBO. As there are 375 GPs in our sample, there are 669 observations for fees on previous LBOs. Change in fees is the difference between the (scaled) fee charge on the focal LBO and that charged on average on previous LBOs. Data on the amount of capital raised are from Preqin and are expressed in millions of US dollars. Fund performance is also from Preqin and measured by cash multiple (total distributed plus net asset value, all divided by total invested, net of all fees). A fund is ‘out of the carry’ if its IRR is above 8% (as of 2015, net of all fees); some funds have a Multiple but no reported IRR. Performance volatility is the standard deviation of cash multiples across the funds raised by the same GP; this requires at least two funds in the set. GP Market Shares is as in Demiroglu and James (2010): the number of LBOs sponsored by that GP divided by the total number of LBOs observed over the past 36 months (using Capital IQ). GP lack of reputation is as in Barber and Yasuda (2016): this variable is equal to one if the GP does not have a top quartile fund in its track record, and zero otherwise. GP ownership is the share of the equity owned by the focal GP. The sum of the ownership of each GP in an LBO is labeled ‘Equity ownership by GPs.’ GP age is computed from the vintage year of the first fund raised by the focal GP. Fund age is the average of the fund at the time of the LBO (where the starting date is the vintage year). Another Preqin dataset is used to compute the fraction of fund-of-funds among the LPs of a given GP. Each LP who has invested with this GP at the year of LBO inception is taken into account and is equally weighted. GFC stands for the 2008 Global Financial Crisis. Distance to the GFC is equal to 2008 minus the year of LBO inception. Maximum rebate rate for funds of that vintage and size is derived using the Preqin Terms and Conditions dataset; funds are assigned to matching size terciles each vintage year. We also record the fraction of the partners working for a given GP at the time of LBO inception that have i) a graduate degree, ii) more than five years past experience in a consulting company, iii) more than five years past experience in an investment bank. GP going public (1/0) is a dummy variable that is one if the GP is either: KKR, Blackstone, or Apollo, and the LBO inception year is between 2003 and 2008. Q1 and Q3 stand for the 25th and 75th percentiles respectively. GP age is computed from the vintage year of the first fund raised by GPs. GP fund age is the difference between year of LBO inception and fund vintage year. If a GP invests in an LBO with more than one fund, we take the average across funds.

	No. of obs.	Mean	St. Dev.	25 th	Median	75 th
Monitoring fees per GP	1044	7.79	16.05	0.00	1.92	8.43
Transaction fees per GP	1044	9.60	18.76	0.00	2.83	11.70
Total EBITDA during investment per GP	1044	490	1,237	52	168	474
Total Enterprise Value per GP	1044	898	2,048	99	306	816
Monitoring fees (% of EBITDA) per GP	1044	1.9%	2.6%	0.0%	0.9%	2.6%
Transaction fees (% of TEV) per GP	1044	1.1%	1.2%	0.0%	1.0%	1.7%
Monitoring fees (% of EBITDA) GP previous LBOs	669	1.4%	1.4%	0.3%	1.1%	1.9%
Transaction fees (% of TEV) GP previous LBOs	669	1.3%	1.0%	0.7%	1.2%	1.7%
Change in Monitoring fees (% of EBITDA)	669	0.7%	2.1%	-0.4%	0.0%	1.5%
Change in Transaction fees (% of TEV)	669	0.0%	1.1%	-0.7%	0.0%	0.5%
Amount of capital raised post-LBO by GP	761	6,926	8,304	880	3,250	9,269
Amount of capital raised pre-LBO by GP	761	7,050	9,344	1,000	3,450	8,748
Growth in capital raised pre- to post-LBO by GP	761	0.51	1.33	-0.42	0.14	1.16
Pre-LBO GP performance	681	1.98	0.49	1.66	1.98	2.24
Post-LBO GP performance	659	1.65	0.44	1.37	1.60	1.90
Fund is 'out of the carry'	634	0.22	0.41	0.00	0.00	0.00
Pre-LBO GP performance volatility	518	0.58	0.25	0.48	0.59	0.72
GP Market Shares (*100)	1044	0.32	0.42	0.00	0.18	0.43
GP lacks reputation	681	0.35	0.48	0.00	0.00	1.00
GP ownership	1044	0.49	0.33	0.17	0.45	0.80
GP age	832	10.53	8.89	4.00	10.00	16.00
Fund age	700	1.92	1.74	1.00	2.00	3.00
Fraction of LPs that are Fund of Funds	715	0.20	0.12	0.13	0.20	0.25
Distance to GFC	1044	6.45	4.59	3.00	6.00	10.00
Monitoring fees (% of EBITDA) * Distance to GFC	1044	0.10	0.21	0.00	0.02	0.12
Transaction fees (% of TEV) * Distance to GFC	1044	0.08	0.12	0.00	0.02	0.11
Amount of capital raised post-GFC by GP	766	6,857	7,847	804	3,500	11,437
Amount of capital raised pre-GFC by GP	766	14,180	13,551	2,500	7,400	28,185
Growth in capital raised pre- to post-GFC by GP	766	-48%	51%	-83%	-63%	-29%
Pre-GFC GP performance	731	1.72	0.27	1.61	1.76	1.87
Pre-GFC GP performance volatility	685	0.57	0.22	0.47	0.62	0.72
Maximum rebate rate for funds of that vintage and size	776	0.80	0.17	0.65	0.80	1.00
Founding partners with a graduate degree (%)	614	0.69	0.39	0.50	1.00	1.00
Founding partners with a consulting background (%)	615	0.10	0.24	0.00	0.00	0.00
Founding partners with an I-banking background (%)	615	0.41	0.36	0.00	0.33	0.67
GP going public (1/0)	1044	0.05	0.22	0.00	0.00	0.00

Table 5: GP going public and fees

Panel A shows the sum of fees charged by a given GP, or group of GPs, over a given time period divided by either EBITDA or TEV. EBITDA (*TEV*) is adjusted by GP equity ownership. Three GPs went public in 2007: Apollo, Blackstone and KKR. Blackstone filed on March 22nd 2007, KKR filed on July 3rd 2007, and Apollo filed a Rule 144-A Private Placement of Shares on August 8, 2007. The three similarly large GPs that decided to remain private in 2007 are Bain capital, Carlyle and TPG. Panel B shows the amount raised and the performance of the funds raised by these six GPs. GPs are anonymized. Average Multiple and IRR are computed across all funds with vintage years 1980 to 2002, and 2003 to 2008, weighted by fund size.

Panel A: Change in capital flows and performance for the largest six GPs

	Vintage years: 1980- 2002			Vintage years: 2003 - 2008		
	Total raised	Average Multiple	Average IRR	Total raised	Average Multiple	Average IRR
<i>GPs filing an S1 form</i>						
GP 1	11.97	2.10	23.08	30.03	1.78	17.06
GP 2	14.29	2.05	22.57	37.90	1.52	10.08
GP 3	19.53	2.45	15.61	44.94	1.55	10.73
All 3 GPs	45.79	2.23	19.73	112.87	1.60	12.20
<i>Similar GPs not filing an S1 form</i>						
GP 4	10.96	2.26	19.37	29.55	1.47	8.89
GP 5	11.02	2.49	20.33	31.66	1.54	12.12
GP 6	15.12	2.26	20.73	45.45	1.45	9.88
All 3 GPs	37.10	2.33	20.21	106.66	1.48	10.27

Panel B: Fee policy pre- and post-2003

	Fees charged 1980-2002 (LBOs)			Fees charged from 2003 (LBOs)			% change in fees charged	
	Monitoring (% of EBITDA)	Transaction (% of TEV)	No. of obs.	Monitoring (% of EBITDA)	Transaction (% of TEV)	No. of obs.	Monitoring (% of EBITDA)	Transaction (% of TEV)
<i>GPs filing an S1 form</i>								
GP1	1.05%	0.78%	9	1.94%	0.99%	23	85%	26%
GP2	1.38%	1.37%	10	2.31%	1.60%	21	68%	16%
GP3	0.77%	0.56%	14	1.44%	0.84%	18	87%	51%
All 3 GPs	1.02%	0.82%	33	1.83%	1.08%	62	80%	32%
<i>Similar GPs not filing an S1 form</i>								
GP4	4.05%	2.06%	17	1.34%	1.03%	24	-67%	-50%
GP5	1.35%	1.05%	8	1.22%	0.52%	18	-9%	-50%
GP6	1.37%	0.95%	13	1.56%	0.61%	18	14%	-36%
All 3 GPs	2.14%	1.39%	38	1.38%	0.74%	60	-35%	-47%
<i>Rest of GPs</i>	1.20%	0.84%	484	1.62%	0.74%	367	35%	-12%

Table 6: GP Characteristics and Portfolio Company Fees

This table shows results from OLS regressions. The unit of observation is a GP participating in an LBO. The variables are as described in Table 4. ‘other control variables’ are the control variables we included in each specification in a given Panel, but were never significant. We do not tabulate them to preserve space. In Panel A, ‘other control variables’ are: Bankrupted (1/0), Time trend, and Add-ons (1/0). In Panel B, ‘other control variables’ are: IPO exited (1/0), Bankrupted (1/0), and Time trend. Standard errors are clustered by GP; the corresponding t-statistics are reported under each coefficient in italics. ‘a’, ‘b’, and ‘c’ refer to statistical significance at the 1%, 5%, and 10% level respectively. Panel A uses Monitoring Fees Relative to EBIDTA per GP as the dependent variable, while Panel B uses Transaction Fees Relative to TEV per GP as the dependent variable.

Panel A: Dependent variable is Monitoring Fees Relative to EBITDA per GP

Total EBITDA during investment per GP (log)	-1.12 ^a	-1.09 ^a	-1.08 ^a	-1.25 ^a	-1.14 ^a	-1.12 ^a
	-6.26	-5.96	-4.56	-5.37	-4.07	-5.43
Total Enterprise Value per GP (log)	0.55 ^a	0.47 ^a	0.53 ^b	0.44 ^b	0.67 ^a	0.44 ^b
	3.39	2.75	2.51	2.56	2.64	2.46
IPO exited (1/0)	0.26	0.77 ^a	0.48 ^c	0.46 ^c	0.77 ^b	0.62 ^a
	1.42	3.10	1.74	1.85	2.18	2.76
Equity ownership by GPs	-2.00 ^a	-2.47 ^a	-2.02 ^c	-2.66 ^b	-2.28	-2.12 ^b
	-2.66	-2.88	-1.77	-2.23	-1.61	-2.38
Number of GPs	0.33 ^a	0.34 ^a	0.55 ^a	0.42 ^a	0.47 ^b	0.39 ^a
	2.97	3.00	3.44	3.09	2.32	2.67
GP ownership	2.01 ^a	2.12 ^a	1.95 ^a	2.29 ^a	1.52 ^c	2.15 ^a
	3.63	3.57	2.62	2.87	1.68	3.04
GP Market Shares (*100)	0.24	0.01	0.13	0.25	0.09	-0.33
	0.70	0.03	0.26	0.69	0.18	-0.91
GP going public (1/0)	1.04 ^a					
	3.05					
Monitoring fees (% of EBITDA) of GP previous LBOs		0.75 ^a				
		6.78				
GP lacks reputation			0.19			
			0.47			
GP age			-0.02			
			-0.93			
Amount of capital raised pre LBO by GP (log)			-0.01			
			-0.06			
Fund age			-0.04			
			-0.55			
Founding partners with a graduate degree (%)				1.00 ^b		
				2.24		
Founding partners have a consulting background (%)				1.79 ^a		
				2.95		
Founding partners have a I-banking background				0.32		
				0.58		
Pre-LBO GP performance					-0.74	
					-1.18	
Fund is 'out of the carry'					-0.19	
					-0.51	
Pre-LBO GP performance volatility					0.15	
					0.19	
Maximum rebate rate for funds of that vintage and size						-0.17
						-0.26
Fraction of LPs that are Fund-of-Funds						5.65 ^a
						4.44
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter of LBO inception Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.18	0.35	0.20	0.24	0.21	0.28
Number of observations	1044	669	608	595	451	669

Panel B: Dependent variable is Transaction Fees Relative to TEV per GP

Total EBITDA during investment per GP (log)	0.28 ^a	0.20 ^b	0.29 ^a	0.19	0.24 ^b	0.28 ^b
	2.79	2.01	2.63	1.50	2.31	2.19
Total Enterprise Value per GP (log)	-0.10	-0.14	-0.18 ^c	-0.12	-0.12	-0.16
	-1.17	-1.37	-1.80	-1.11	-1.14	-1.50
Equity ownership by GPs	-1.24 ^a	-0.60	-0.65	-1.24 ^b	-0.08	-0.96 ^b
	-3.40	-1.46	-1.63	-2.50	-0.18	-2.40
Number of GPs	0.11 ^b	0.12 ^c	0.18 ^a	0.07	0.13 ^c	0.14 ^b
	2.39	1.84	2.77	1.07	1.93	1.99
Add-ons (1/0)	0.32 ^a	0.29 ^b	0.29 ^b	0.43 ^a	0.12	0.30 ^b
	3.11	2.57	2.43	3.24	1.00	2.34
GP ownership	0.70 ^a	0.44 ^c	0.26	0.20	-0.03	0.38
	3.21	1.68	0.89	0.60	-0.08	1.34
GP Market Shares (*100)	0.07	-0.07	-0.26 ^b	-0.22	-0.34 ^b	-0.14
	0.67	-0.75	-2.00	-1.56	-2.00	-1.12
GP going public (1/0)	0.15					
	0.96					
Transaction fees (% of TEV) of GP previous LBOs		0.34 ^a				
		6.50				
GP lacks reputation			-0.14			
			-0.93			
GP age			-0.02 ^b			
			-2.52			
Amount of capital raised pre-LBO by GP (log)			0.11			
			1.59			
Fund age			0.06 ^c			
			1.94			
Founding partners with a graduate degree (%)				0.21		
				1.00		
Founding partners with a consulting background (%)				-0.05		
				-0.21		
Founding partners with I-banking background				0.11		
				0.54		
Pre-LBO GP performance					-0.05	
					-0.25	
Fund is 'out of the carry'					-0.21	
					-1.34	
Pre-LBO GP performance volatility					0.73 ^a	
					2.79	
Maximum rebate rate for funds of that vintage and size						-0.14
						-0.41
Fraction of LPs that are Fund-of-Funds						0.80
						1.44
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter of LBO inception Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.11	0.19	0.17	0.16	0.20	0.12
Number of observations	1044	669	608	595	451	669

Table 7: Flow-fee sensitivity around date of LBO inception

This table shows results from OLS regressions. The dependent variable is the increase in capital raised over the ten years prior to the LBO inception year and capital raised over the ten years after the LBO inception year. T-statistics are reported under each coefficient in italics. ‘a’, ‘b’, and ‘c’ refer to statistical significance at the 1%, 5%, and 10% level respectively. Variables are as defined in Table 4.

Monitoring fees (% of EBITDA)	-0.02 <i>-0.87</i>	-0.02 <i>-0.87</i>	-0.02 <i>-0.83</i>
Transaction fees (% of TEV)	-0.03 <i>-0.51</i>	-0.03 <i>-0.51</i>	-0.06 <i>-1.15</i>
Bankrupted (1/0)	-0.05 <i>-0.38</i>	-0.05 <i>-0.38</i>	-0.12 <i>-1.03</i>
IPO exited (1/0)	0.16 <i>1.64</i>	0.16 <i>1.62</i>	0.01 <i>0.13</i>
Add-ons (1/0)	0.05 <i>0.57</i>	0.05 <i>0.55</i>	-0.04 <i>-0.44</i>
Number of GPs invested in the focal LBO	0.07 <i>1.04</i>	0.07 <i>1.07</i>	0.07 <i>1.16</i>
Equity ownership by GPs	0.17 <i>0.52</i>	0.16 <i>0.51</i>	0.05 <i>0.17</i>
GP ownership	-0.15 <i>-0.62</i>	-0.15 <i>-0.61</i>	-0.13 <i>-0.58</i>
GP going public	0.37 <i>1.37</i>	0.39 <i>1.31</i>	0.29 <i>1.19</i>
GP age	-0.02 <i>-1.38</i>	-0.02 <i>-1.37</i>	-0.03 ^a <i>-2.61</i>
Amount raised pre-LBO by GP (log)	-0.22 ^a <i>-3.07</i>	-0.22 ^a <i>-3.07</i>	-0.14 ^b <i>-2.17</i>
Maximum rebate rate for funds of that vintage and size		0.10 <i>0.22</i>	0.08 <i>0.17</i>
Pre-LBO GP performance			0.91 ^a <i>6.02</i>
Industry Fixed Effects	Yes	Yes	Yes
Quarter of LBO inception Fixed Effects	Yes	Yes	Yes
Adjusted R-squared	0.35	0.35	0.44
Number of observations	761	761	681

Table 8: Flow-fee sensitivity around the Global Financial Crisis

This table shows the results from OLS regressions. The dependent variable is the increase in capital raised over 1999-2008 and capital raised over 2009-2015. GFC stands for the Global Financial Crisis of 2008. T-statistics are reported under each coefficient in italics. 'a', 'b', and 'c' refer to statistical significance at the 1%, 5%, and 10% level respectively. Variables are as defined in Table 4.

Monitoring fees (% of EBITDA)	-0.03 ^b	-0.03 ^b	-0.02 ^b	
	<i>-2.24</i>	<i>-2.54</i>	<i>-2.27</i>	
Transaction fees (% of TEV)	-0.13 ^a	-0.12 ^b	-0.08 ^b	
	<i>-2.62</i>	<i>-2.43</i>	<i>-2.14</i>	
Distance to GFC	-0.03	-0.04 ^a	-0.02 ^c	-0.02
	<i>-1.49</i>	<i>-2.70</i>	<i>-1.84</i>	<i>-1.56</i>
Monitoring fees (% of EBITDA) * Distance to GFC	-0.05	0.06	0.08	-0.12
	<i>-0.29</i>	<i>0.28</i>	<i>0.47</i>	<i>-0.44</i>
Transaction fees (% of TEV) * Distance to GFC	1.37 ^b	1.29 ^c	1.03 ^c	0.32
	<i>1.97</i>	<i>1.74</i>	<i>1.89</i>	<i>0.46</i>
Bankrupted (1/0)	0.01	0.00	-0.06	-0.03
	<i>0.08</i>	<i>-0.01</i>	<i>-1.27</i>	<i>-0.61</i>
IPO exited (1/0)	0.11 ^a	0.14 ^a	0.11 ^a	0.09 ^b
	<i>2.64</i>	<i>3.03</i>	<i>2.94</i>	<i>2.28</i>
Add-ons (1/0)	-0.02	-0.03	-0.03	-0.03
	<i>-0.39</i>	<i>-0.74</i>	<i>-0.71</i>	<i>-0.69</i>
Number of GPs invested in the focal LBO	-0.01	0.00	0.00	-0.02
	<i>-0.38</i>	<i>-0.09</i>	<i>-0.06</i>	<i>-0.57</i>
Equity ownership by GPs	0.08	0.11	0.04	0.25
	<i>0.45</i>	<i>0.60</i>	<i>0.23</i>	<i>1.45</i>
GP ownership	0.04	0.05	0.07	0.05
	<i>0.32</i>	<i>0.45</i>	<i>0.62</i>	<i>0.38</i>
GP going public	0.27 ^a	0.31 ^a	0.23 ^b	0.18
	<i>3.09</i>	<i>3.57</i>	<i>2.25</i>	<i>1.56</i>
GP age in 2008	0.01	0.01	0.01	0.01 ^c
	<i>1.44</i>	<i>1.35</i>	<i>0.86</i>	<i>1.80</i>
Amount raised pre-GFC by GP	-0.10 ^b	-0.11 ^b	-0.13 ^a	-0.13 ^a
	<i>-2.44</i>	<i>-2.57</i>	<i>-3.14</i>	<i>-2.83</i>
Maximum rebate rate for funds of that vintage and size		0.33 ^c	0.42 ^b	0.34 ^c
		<i>1.92</i>	<i>2.53</i>	<i>1.95</i>
Pre-GFC GP performance			0.89 ^a	0.91 ^a
			<i>5.48</i>	<i>5.17</i>
Change in Monitoring fees (% of EBITDA)				-0.48
				<i>-0.31</i>
Change in Transaction fees (% of TEV)				-1.59
				<i>-0.35</i>
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter of LBO inception Fixed Effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.12	0.13	0.37	0.34
Number of observations	766	727	708	583

Table 9: Current GP fundraising situation and portfolio company fees charged

This table shows the recent fundraising activities of those GPs charging the least portfolio companies fees, and compares the post-crisis fundraising to fees charged for those GPs charging the highest portfolio company fees. ‘Out of business’ means that no fund has been raised since 2009; so classified GPs may nonetheless be actively managing their portfolio of companies and may raise a fund in the future. Post-crisis fundraising can also be classified as: Large decrease (between -50% and -99.9%), decrease (between -15% and -50), stable (between -15% and 15%), increase (between 15% and 33%), and large increase (above 33%). GPs in Panel A have a total fee to TEV ratio below 1%, while GPs in Panel B have a total fee to TEV ratio above 2.5%. In Panel A, GPs are sorted by alphabetical order; in Panel B, GPs are anonymized. TEV is in millions of 2014 US dollars. Note that fees are not adjusted for deal size and other characteristics that impact fee levels, and GP fee levels are based on a subset of the investments made by each GP.

Panel A: GPs charging the lowest amount of portfolio company fees

GP name	Post-crisis fundraising	Size and vintage years of flagship funds	Fundraising duration (<i>latest</i>)
ABRY Partners	Stable	Fund VIII raised \$1.9b, oversubscribed. Fund VII raised \$1.6b in 2011	6 months
Advent International Corp	Large Increase	Raising Fund VIII, target of \$12b. Fund VII raised \$10.8b in 2011, oversubscribed. Fund VI raised \$10.4b in 2008	8 months
Avista Capital	Large Decrease	Fund III raised \$1.4b in 2013, slightly undersubscribed. Fund II raised \$1.8b in 2008	2.5 years
CCMP	Stable	Fund III raised \$3.6b in 2014, oversubscribed. Fund II raised \$3.4b in 2007	2.25 years
Centerbridge	Large Increase	Fund III raised \$6b in 2014, oversubscribed. Fund II raised \$4.4b in 2011	4.5 months
Cerberus Capital Mngt	Decrease	Raising Fund VI, target of \$3.5b. Fund V raised \$2.6b in 2013, undersubscribed. Fund IV raised \$7.5b in 2006	2 years
First Reserve Corp	Large Decrease	Fund XIII raised \$3.4b in 2014, undersubscribed. Fund XII raised \$9b in 2009	2.3 years
Fortress	Decrease	Fund IV raised \$5b in 2015, oversubscribed. Fund III raised \$4.3b in 2012	n/a
Hellman & Friedman	Large Increase	Fund VIII raised \$11b in 2014, their largest ever, oversubscribed. Fund VII raised \$8.9b in 2011.	6 months
Norwest Equity	Increase	Fund X raised \$1.6b in 2015. Fund IX raised \$759m in 2008	n/a
Oaktree Capital Mngt	Stable	Raising Fund IV. Fund III raised \$1b in 2010, oversubscribed. Fund II raised \$1b in 2004	n/a
Odyssey Partners	Large Increase	Fund V raised \$2b in 2014, oversubscribed. Fund IV raised \$1.5b in 2009	5 months
Onex Corporation	Large Increase	Fund IV raised \$5b in 2014, their largest ever, oversubscribed. Fund III raised \$4.7b in 2009	9 months
Summit Partners	Decrease	Fund IX targets \$3b. Fund VIII raised \$2.7b in 2012. Fund VI raised \$3b in 2006	7 months
TA Associates	Increase	Fund XII raised \$5.3b in 2015, oversubscribed. Fund XI raised \$4b in 2010	5 months
Thoma Cressey Equity Prtnrs	Large Increase	Fund XI raised \$3.7b in 2014, oversubscribed. Fund X raised \$1.3b in 2012	4 months
Walnut Investment Prtnrs	Stable	Fund V raised \$150m in 2010, oversubscribed. Fund IV raised \$53m in 2004	8 months
Warburg Pincus	Stable	Fund XII raised \$12b. Fund XI raised \$11b in 2012. Fund X raised \$15b in 2007	6 months

Panel B: GPs charging the highest amount of portfolio company fees compared to TEV

	Post-crisis fundraising	Fees/TEV	Fees/EBITDA	No. of obs.	TEV
GP1	Out of Business	0.077	0.136	2	403
GP2	Large Decrease	0.072	0.141	2	267
GP3	Out of Business	0.066	0.096	1	639
GP4	Stable	0.062	0.145	1	283
GP5	Out of Business	0.058	0.084	2	500
GP6	Stable	0.051	0.137	4	860
GP7	Out of Business	0.047	0.109	1	182
GP8	Decrease	0.042	0.079	1	1271
GP9	Decrease	0.041	0.063	10	2276
GP10	Increase	0.040	0.083	4	581
GP11	Large Decrease	0.039	0.029	3	187
GP12	Decrease	0.038	0.057	3	950
GP13	Decrease	0.037	0.074	13	5510
GP14	Large Decrease	0.035	0.069	4	1206
GP15	Stable	0.034	0.075	1	492
GP16	Large Decrease	0.034	0.045	1	426
GP17	Out of Business	0.033	0.083	4	929
GP18	Out of Business	0.033	0.057	7	2302
GP19	Out of Business	0.032	0.036	6	1597
GP20	Stable	0.030	0.110	1	320
GP21	Large Decrease	0.030	0.086	10	3322
GP22	Out of Business	0.030	0.057	4	1797
GP23	Out of Business	0.029	0.043	16	3813
GP24	Out of Business	0.029	0.058	8	3991
GP25	Out of Business	0.029	0.020	3	926
GP26	Decrease	0.028	0.065	8	13309
GP27	Decrease	0.026	0.032	1	194
GP28	Out of Business	0.026	0.085	10	15202
GP29	Out of Business	0.026	0.045	5	1411

Table 10: Rebate Policy Across Funds and Over Time

Panel A of this table shows the average rebate of transaction and monitoring fees per vintage year. Statistics are shown per fund vintage years and separately for the sub-sample of funds charging less (more) than 2% per annum of management fees (which is the average), for the sub-sample of funds that are smaller (larger) than \$500 million (the average fund size), and for all funds. Panel B shows the fraction of funds rebating a given amount. Panel C shows the regression results when the 'Rebate rate' is used as the dependent variable. Data source: Preqin Terms and Conditions database 2014 (Buyout funds only, Europe and US based funds). One quarter of the LBO funds have a missing entry and are not included: they are likely not to refund any transaction and monitoring fees but we cannot be certain.

Panel A: Rebate policy per vintage year

Vintage years	No. of funds	Base management fee		Fund size (\$ million)		All
		≤ 2% p.a.	> 2% p.a.	≤ 500	> 500	
2000-2003	20	82.66	82.50	87.50	79.32	82.63
2004	14	77.64	-	77.14	78.14	77.64
2005	23	76.19	35.00	70.00	76.67	72.61
2006	31	70.86	75.00	67.38	82.22	71.13
2007	39	70.34	57.50	65.57	73.06	69.03
2008	32	81.67	50.00	78.08	84.41	79.69
2009	29	76.54	76.67	67.86	84.67	76.55
2010	57	76.74	67.27	72.81	73.16	74.91
2011	51	85.25	86.67	85.59	85.00	85.33
2012	45	85.00	83.33	84.04	88.06	84.89
2013	35	84.58	100.00	81.39	96.21	86.34
2014	13	84.17	100.00	82.86	88.33	85.38
Total	389	79.40	73.33	76.28	82.37	78.79

Panel B: Fraction of funds rebating a given amount

Rebated rate	Base management fee		Fund size (\$ million)		All
	< 2% p.a.	> 2% p.a.	< 500	> 500	
50%	0.23	0.26	0.27	0.18	0.23
80%	0.28	0.18	0.26	0.30	0.27
100%	0.40	0.44	0.36	0.45	0.40
Other	0.09	0.13	0.10	0.08	0.10

Panel C: Regression analysis; dependent variable: Rebate Rate

Aggressive waterfall (deal-by-deal)	-6.76 ^a					-5.32 ^b
	-2.67					-2.15
Aggressive base management fees (>2%)		-6.56 ^b				-5.94 ^b
		-2.04				-2.05
Aggressive carry (>20%)			-16.27 ^b			-15.30 ^a
			-2.26			-2.60
Aggressive Investment period (>5)				-7.33 ^a		-7.10 ^a
				-2.76		-2.72
Aggressive hurdle (<8%)					-11.65 ^c	-13.89 ^c
					-1.74	-1.91
Fund size	4.71 ^a	2.85 ^b	4.17 ^a	4.54 ^a	4.22 ^a	4.54 ^a
	4.44	2.19	4.07	4.25	4.11	3.37
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	16	15	15	16	15	21
Number of observations	285	285	285	285	285	285

Appendix Table 1: Contractual Rules for Monitoring Fees

This table gives the frequency of each provision in five different samples (all observations, LBOs made in 2000 and before, LBOs made in 2001 and after, small LBOs and large LBOs). LBOs with a TEV below \$500 million are classified as small and those above \$500 million are classified as large.

	All	Pre-2000	Post-2000	Small	Large
<i>Rules for the calculation of monitoring fees</i>					
Non-growing annuity	84.1	91.3	79.3	91.2	76.9
Growing annuity	3.5	0.6	5.6	0.4	6.7
1% of EBITDA	1.3	1.6	1.1	0.9	1.8
2% of EBITDA	1.3	0.6	1.9	0.9	1.8
Any % of sales	0.4	0.6	0.4	0.4	0.4
Greater of non-growing annuity and 1% of EBITDA	2.9	0.6	4.4	0.4	5.3
Greater of non-growing annuity and 2% of EBITDA	2.0	0.0	3.3	0.9	3.1
Greater of non-growing annuity and other % of EBITDA	0.7	0.6	0.7	0.0	1.3
Greater of a non-growing annuity and any % of Sales	3.1	4.4	2.2	4.0	2.2
Other	0.7	0.0	1.1	0.9	0.4
<i>Duration of the Management Service Agreements</i>					
Rolling	4.0	5.1	3.4	2.8	3.1
One or three years	2.4	3.3	1.8	3.2	1.6
Five years	21.2	34.8	13.5	29.4	13.2
Six or seven years	8.2	5.4	9.8	7.1	9.3
Ten years	50.6	46.7	52.8	50.8	50.4
Twelve years	10.2	2.2	14.7	2.4	17.8
Other duration	3.5	2.5	4.0	4.3	4.7
<i>Termination fees (a.k.a. accelerated monitoring fees) calculated as:</i>					
Present Value of outstanding fees under contract	25.5	1.1	38.0	3.9	45.1
Other termination fee rule	11.1	9.8	11.8	10.1	12.0
No termination fees to be paid	12.2	16.3	10.1	14.7	9.9
No explicit rule	51.3	72.8	40.2	71.3	33.1

Appendix Table 2: Imputed Fees

This table describes our observations by exit status and SEC coverage.

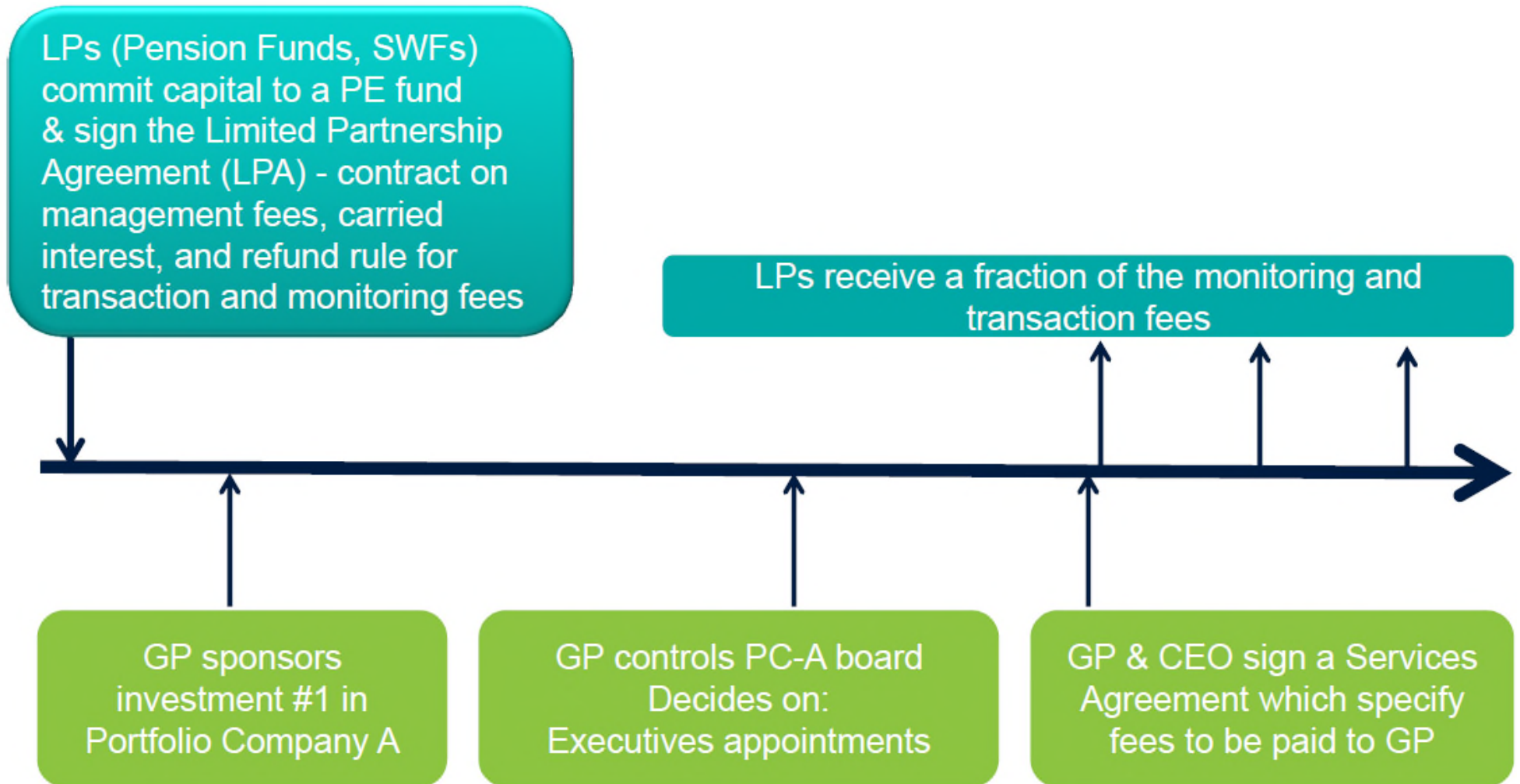
Status	SEC filing years		No. of obs.	Transaction fee	Monitoring fee	Amount imputed	Observations classified as 'complete'
	Early years	Late years					
Exited	Available	Available	371	5,590	4,586	0	Yes
Exited	Missing	Missing	47	527	62	435	No
Exited	Available	Only last year missing	36	1,135	733	0	Yes
Exited	Available	Missing	19	315	161	110	No
Exited	Only 1st year missing	Available	19	257	402	0	Yes
Exited	Available	Missing years during chap 11 protection	17	138	55	0	Yes
Exited	Missing	Available	13	164	77	29	No
Exited	Available	Missing years beyond MSA duration	8	66	57	0	Yes
Exited	Only 1st year missing	Only last year missing	3	140	123	0	Yes
Exited	Missing	Only last year missing	2	5	5	3	No
Not exited	Available	Only last year missing	20	783	756	0	No
Not exited	Available	Available	18	204	121	0	No
Not exited	Available	Missing	13	456	287	168	No
Not exited	Missing	Missing	3	38	0	19	No
Not exited	Available	Missing years beyond MSA duration	1	12	20	0	No
Not exited	Only 1st year missing	Available	1	70	21	0	No
Not exited	Only 1st year missing	Only last year missing	1	16	10	0	No
Total			592	9,916	7,476	765	

Appendix Table 3: Income streams of the ‘Big-4’

This table shows the income stream for the private equity segment of the four private equity firms that are publicly listed. These firms are also considered to be the four largest private equity firms according to PEI magazine 2014. Total amounts are calculated between 2008 and 2014 when data is available.

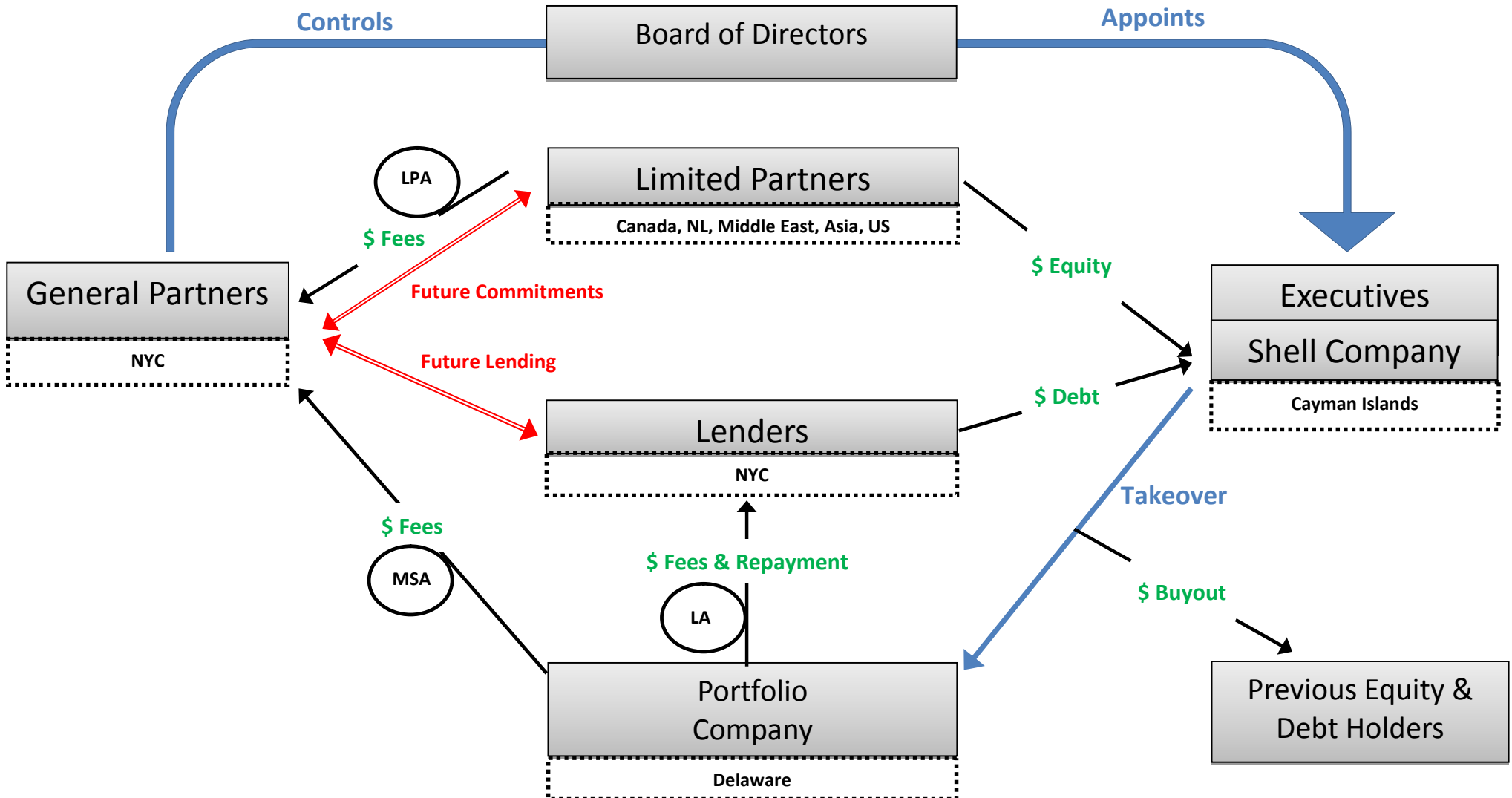
	2007	2008	2009	2010	2011	2012	2013	2014	2008-2014
Apollo									
Fund management fees	149	245	261	259	263	277	285	315	1,905
Monitoring and transaction fees Gross	208	330	148	163	156	276	n/a	n/a	1,073
Fee offsets	-117	-209	-99	-101	-98	-154	n/a	n/a	-661
Monitoring and transaction fees Net	90	121	49	60	58	122	78	58	546
Carried interest	657	-845	311	1,322	-449	1,668	2,517	232	4,756
All fees	897	-479	621	1,641	-128	2,066	2,880	605	7,206
Blackstone									
Fund management fees	255	269	271	263	332	349	368	416	2,268
Monitoring and transaction fees Net	124	52	86	72	133	100	97	135	675
Carried interest	380	-430	338	309	71	258	728	1,977	3,251
All fees	759	-110	695	644	536	707	1,193	2,528	6,193
Carlyle									
Fund management fees	n/a	523	536	538	511	496	472	565	3,641
Monitoring fees net	n/a	14	16	15	31	18	23	18	135
Transaction fees net	n/a	20	12	22	35	19	21	51	180
Monitoring and transaction fees Net	n/a	34	28	36	66	37	44	69	314
Carried interest	n/a	-688	495	1,264	854	770	1,874	1,354	5,923
All fees	n/a	-132	1,059	1,838	1,431	1,303	2,389	1,988	9,876
KKR									
Fund management fees	258	396	415	396	430	424	460	453	2,974
Monitoring fees gross	70	97	158	87	164	117	120	135	878
Transaction fees gross	683	23	58	96	167	97	150	215	806
Fee offsets	-231	-13	-74	-53	-145	-97	-137	-199	-718
Monitoring and transaction fees Net	523	108	142	130	186	116	134	151	967
Carried interest	261	-1,160	746	605	139	684	794	777	2,585
All fees	1,042	-656	1,303	1,131	755	1,223	1,387	1,381	6,524

Appendix Figure 1: The timeline



Appendix Figure 2: The private equity model

Contracts are shown in circles. Double arrows show repeated interactions between two parties. Places in the dotted lines show the typical geographical location of the headquarters. LPA, MSA and LA refer to Limited Partnership Agreement, Management Services Agreement, and Lending Agreement respectively.



Appendix Figure 3: Google Trend Search for Management Services Agreements

