

# **Long Goodbyes: How do Private Equity Funds Manage Sell-Downs after Initial Public Offerings?**

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## Online Appendix 1. Data Sources

The following table provides information on data sources used for the purposes of our analyses. All major data sources are filings made by portfolio companies following rules and regulations of the US Securities and Exchange Commission (SEC). As our sample uses companies going public in US IPOs, we start tracking the exit process with the GP shareholdings as listed in S-1/424B filings at the time of the IPO. Once the company's shares start trading, we obtain GP share sales through Form 4 filings and Director Exits through form 8-K filings. As the GP's ownership stake falls below 10% and its Directors exit the portfolio company's Board, Form 4s do not have to be filed anymore. We therefore track the exit process through forms SC-13G and DEF14A. The final exit of the GP can be found in five ways: (1) a Form 4 listing zero GP shareholdings after a share sale, (2) a form SC-13G showing zero GP shareholdings at a record date, (3) a DEF14A filing listing neither a GP nor any of its Directors as beneficial shareholders anymore, or (4) 8-K filings announcing the closing of M&A transactions (followed by a Form 4 showing the share sale, given the GP has to file it as a >10% shareholder or through a Director), (5) 8-K filings announcing Chapter 11 protection or any other liquidation of the portfolio company. All financial data and/or information on the LBO itself (date, volume etc.) is taken from 10-K filings once the company is public, or S-1/S-4 filings at or before the IPO.

| SEC Filing         | Used For   | Info  | Published   |
|--------------------|--|---|---|
| <b>S-1/424B4</b>   | <ul style="list-style-type: none"> <li>LBO information</li> <li>Shareholdings</li> <li>Financials</li> </ul> | TEV, leverage and GP equity injection at LBO, shareholdings at IPO, financial information for five fiscal years pre-IPO     | At IPO  |
| <b>S-4/424B3/4</b> | <ul style="list-style-type: none"> <li>LBO information</li> <li>Shareholdings</li> </ul>                     | TEV, leverage and GP equity injection at LBO, shareholdings at event, financial information for five fiscal years pre-event | At M&A events, exchange offers                                    |
| <b>Form 4</b>      | <ul style="list-style-type: none"> <li>Share Sales and</li> <li>Shareholdings</li> </ul>                     | (1) date, (2) price, (3) number of shares sold, (4) number of shares held post sale   | At every share sale of >10% shareholders, directors officers      |
| <b>SC-13G/D</b>    | Shareholdings  | Shareholdings of reporting shareholder at record date   | End of calendar year if ownership >5%                             |
| <b>DEF14A</b>      | <ul style="list-style-type: none"> <li>Director Exits</li> <li>Shareholdings</li> </ul>                      | Shareholdings of reporting shareholder at record date, Directors not standing for re-election                               | Annually, pre Shareholder Meeting                                 |
| <b>8-K</b>         |  |   |   |
| - Item 1.01/02/03  | <ul style="list-style-type: none"> <li>M&amp;A</li> <li>Chapter 11</li> </ul>                                | M&A date and price (per share), selling shareholders, Chapter 11 dates and restructuring/process information                | At trigger event: M&A announcement and closing, Chapter 11 filing |
| - Item 5.02        | Director Exits   | Name of resigning Director and resignation date (sometimes also resignation reason)   | At trigger event: Director resignation                            |
| <b>10-K</b>        | Financial Data   | Detailed financial data for current and past fiscal year, overview financial data for past five fiscal years                | Annually, pre Shareholder Meeting                                 |

## Online Appendix 2. LBOs, IPOs and Exits over Time

This table shows our sample LBOs, IPOs and Final Exits over time. The 41 deals that are still active are not included in this table.

|              | <b>LBOs</b> | <b>IPOs</b> | <b>Final Exits</b> |
|--------------|-------------|-------------|--------------------|
| 1990         | 3           | -           | -                  |
| 1991         | 1           | -           | -                  |
| 1992         | 0           | -           | -                  |
| 1993         | 3           | -           | -                  |
| 1994         | 3           | -           | -                  |
| 1995         | 17          | 3           | -                  |
| 1996         | 38          | 12          | 1                  |
| 1997         | 36          | 16          | 3                  |
| 1998         | 45          | 10          | 11                 |
| 1999         | 49          | 27          | 8                  |
| 2000         | 39          | 30          | 11                 |
| 2001         | 22          | 29          | 17                 |
| 2002         | 47          | 24          | 23                 |
| 2003         | 30          | 23          | 20                 |
| 2004         | 65          | 56          | 34                 |
| 2005         | 46          | 92          | 35                 |
| 2006         | 34          | 63          | 58                 |
| 2007         | 55          | 34          | 59                 |
| 2008         | 5           | 8           | 28                 |
| 2009         | 3           | 18          | 23                 |
| 2010         | 12          | 23          | 37                 |
| 2011         | 9           | 32          | 30                 |
| 2012         | 1           | 22          | 32                 |
| 2013         | 1           | 27          | 46                 |
| 2014         | -           | 15          | 31                 |
| 2015         | -           | -           | 28                 |
| 2016         | -           | -           | 19                 |
| 2017         | -           | -           | 10                 |
| <b>Total</b> | <b>564</b>  | <b>564</b>  | <b>564</b>         |

### Online Appendix 3. Data Precision: Share Sales and Board Exits

This table shows the fraction of actual versus implied/estimated data points in our three main samples. First, we report the fraction of GPs' share sale transactions for which we have the actual date versus those with an estimated date. Following Securities and Exchange Commission (SEC) rules in the US, all company insiders (10% shareholders, directors and officers of a company) have to report the changes in their shareholdings by filing a 'Form 4' with the SEC within two business days of the change taking effect. We are able to track a GP's exit process by using the information given in their Form 4 filings at and following their portfolio companies' IPOs. If a GP falls below the 10% ownership threshold but still has a Board Member in the respective portfolio company, we are able to track the exit process through the Director's Form 4 filings on behalf of its GP-employer. If a GP does not have a Board Member and falls below the 10% ownership threshold, we are able to track the exit process through more infrequent DEF14A or Schedule 13G/D filings. These filings only report the share ownership of 'beneficial' owners of at least 5% of a company's shares at specific dates, without showing the actual share sale dates and/or prices as in Form 4s. Using these filings, we record the GP shareholdings as of the record date given in the filings. For the sales price, we calculate the portfolio company's average share price between the last known sale of the GP and the record date. The final exit is recorded as soon as one of these two filings show a 0% ownership of the respective GP. We use the record date given in these filings as proxy for the exit date. As the table below shows, we are able to track the exact date, volume and price of 100% of all share sales at IPO, and of 96% of all share sales and distributions post-IPO. For the last (exit-) share sales, we are able to obtain Form 4-based information for only 64% of all deals. For 27% of the deals we use the SC-13G/DEF14A record dates as the (estimated) exit date and the average share price, as explained above, to determine the US-Dollar volume of the exit sale. For 9% we have to rely on DEF14A proxy statements. As M&A exits are always recorded in 8-K filings containing all relevant information (date, price etc.), we obtain 100% of all exit information for this subsample. Second, the bottom part of the table displays the fraction of Director Exits for which we obtain the actual exit date versus those for which we only obtain a date range. In some instances, the exact date at which a GP-Director exits a portfolio company's Board of Directors is not listed in SEC filings. Filings might only mention date ranges ("...left the company in June 2015"), exits around certain events without specifying dates ("All directors will resign following the completion of the merger"), or a company ceases to file relevant documents with the SEC before the full exit of a GP. For these reasons, we do not obtain the exact exit date for 11% of all Director exits. In these cases, we either use the closest/most likely exit date (assuming the midpoint in a given date range) or assume the Director left at the mentioned event (Chapter 11 filing).

|                                       | Full Sample | 'Regular' Exit Sample | M&A Exit Sample   | Chapter 11 Sample |
|---------------------------------------|-------------|-----------------------|-------------------|-------------------|
| <b>IPO Sales</b>                      |             |                       |                   |                   |
| - Exact Date (SEC Form 4)             | 100%        | 197 of 197 (100%)     | 50 of 50 (100%)   | 11 of 11 (100%)   |
| <b>Post-IPO Sales + Distributions</b> |             |                       |                   |                   |
| - Exact Date (SEC Form 4)             | 96%         | 1,532 of 1,602 (96%)  | 206 of 212 (97%)  | 70 of 72 (97%)    |
| - Closest Date (SEC SC-13)            | 4%          | 70 of 1,602 (4%)      | 6 of 212 (3%)     | 2 of 72 (3%)      |
| <b>Exit (Last Share Sales)</b>        |             |                       |                   |                   |
| - Exact Date (SEC Form 4)             | 64%         | 217 of 407 (53%)      | 129 of 129 (100%) | 17 of 28 (61%)    |
| - Closest Date (SEC SC-13)            | 9%          | 49 of 407 (12%)       | 0 of 129 (0%)     | 1 of 28 (4%)      |
| - Latest Date (SEC DEF14A)            | 27%         | 141 of 407 (35%)      | 0 of 129 (0%)     | 10 of 28 (36%)    |
| <b>Board Exits</b>                    |             |                       |                   |                   |
| - Exact Exit Date                     | 89%         | 610 of 690 (88%)      | 283 of 307 (92%)  | 52 of 66 (79%)    |
| - Exit Date Range                     | 11%         | 80 of 690 (12%)       | 24 of 307 (8%)    | 14 of 66 (21%)    |

## Online Appendix 4. Descriptive Statistics: Annual Shareholdings and Exits

This table provides summary statistics on GP shareholdings in their portfolio companies at/around the IPO and in the years thereafter. The table shows the total percent ownership per GP in their respective portfolio companies in the years following the companies' IPOs. This number is not calculated based on actual share sale transactions but taken from annual DEF-14A proxy statements filed by the portfolio companies after the IPO. The mean and median percent shareholdings are therefore the fraction of the total shares outstanding in the portfolio companies. The table also displays the (cumulative) percent of deals fully exited within each given year following the IPO.

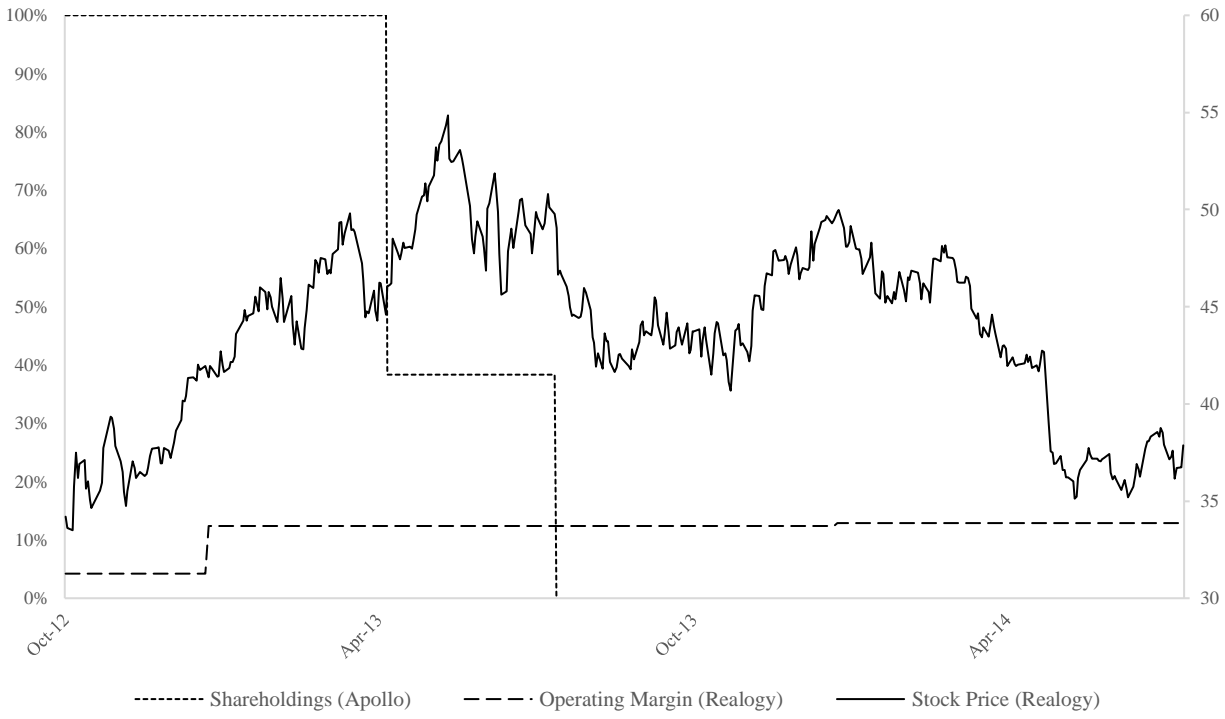
| % Ownership in Portfolio Company            | 'Regular' Exit Sample |      |        |          | M&A Exit Sample |      |        |          | Chapter 11 Sample |      |        |          |
|---|-----------------------|------|--------|----------|-----------------|------|--------|----------|-------------------|------|--------|----------|
|   | Obs.                  | Mean | Median | % Exited | Obs.            | Mean | Median | % Exited | Obs.              | Mean | Median | % Exited |
| Pre-IPO                                     | 407                   | 42.1 | 36.2   | -        | 129             | 54.4 | 53.7   | -        | 28                | 62.6 | 70.1   | -        |
| After IPO Sales                             | 390                   | 29.1 | 25.5   | 4.2      | 129             | 37.5 | 36.7   | -        | 28                | 45.1 | 50.5   | -        |
| Within (Full) 1 <sup>st</sup> Year post IPO | 317                   | 29.6 | 25.2   | 21.5     | 122             | 34.8 | 31.2   | 5.4      | 27                | 42.1 | 49.3   | 3.6      |
| Within 2 <sup>nd</sup> Year post IPO        | 215                   | 26.5 | 21.0   | 46.8     | 96              | 30.7 | 25.9   | 25.6     | 27                | 40.4 | 41.9   | 3.6      |
| Within 3 <sup>rd</sup> Year post IPO        | 151                   | 25.2 | 18.7   | 62.6     | 67              | 30.8 | 25.8   | 48.1     | 22                | 36.1 | 35.5   | 21.4     |
| Within 4 <sup>th</sup> Year post IPO        | 101                   | 25.3 | 19.5   | 75.0     | 45              | 26.6 | 19.2   | 65.1     | 17                | 39.4 | 39.5   | 39.3     |
| Within 5 <sup>th</sup> Year post IPO        | 68                    | 26.4 | 20.1   | 83.2     | 24              | 28.7 | 27.2   | 81.4     | 11                | 41.0 | 39.6   | 60.7     |
| Within 6 <sup>th</sup> Year post IPO        | 48                    | 23.2 | 16.5   | 88.1     | 15              | 29.3 | 31.1   | 88.4     | 9                 | 39.8 | 43.2   | 67.9     |
| Within 7 <sup>th</sup> Year post IPO        | 27                    | 21.9 | 15.9   | 93.3     | 4               | 33.5 | 36.6   | 96.9     | 8                 | 33.7 | 39.3   | 71.4     |
| Within 8 <sup>th</sup> Year post IPO        | 15                    | 22.4 | 16.7   | 96.3     | 3               | 32.3 | 37.0   | 97.7     | 5                 | 32.0 | 44.1   | 82.1     |
| Within 9 <sup>th</sup> Year post IPO        | 10                    | 18.4 | 13.7   | 97.5     | 2               | 28.9 | 28.9   | 98.4     | 1                 | 48.5 | 48.5   | 96.4     |
| Year 10 post IPO and following              | 7                     | 8.4  | 7.8    | 98.3     | 2               | 30.6 | 37.6   | 98.4     | 0                 | -    | -      | 100.0    |

## Online Appendix 5. Representative Examples of the LBO Exit Process

| <b>Portfolio Company:</b> | <b>Realogy</b>   |                       |       |                      |               |                       |
|---------------------------|--|-----------------------|-------|----------------------|---------------|-----------------------|
| Sponsor:                  | Apollo   |                       |       |                      |               |                       |
| LBO Date:                 | 04/10/2007   |                       |       |                      |               |                       |
| TEV:                      | \$9,261.9mn.   |                       |       |                      |               |                       |
| Fund-Level Fees Paid:     | Management Fees \$164.58mn; Carry \$239.04mn; Total: \$403.62mn (13.4% of Gross Distributions)   |                       |       |                      |               |                       |
| Pre-IPO Ownership:        | 98.7%  |                       |       |                      |               |                       |
| Notes:                    | 180 days lockup agreement in place, first sale takes place on day #187 post IPO  |                       |       |                      |               |                       |
| Example for:              | Fast and aggressive sale post IPO. Few transactions, each one very large, full exit ~1 year post IPO   |                       |       |                      |               |                       |
| Similar Deals:            | North Face (Whitney & Co), RBC Bearings (Whitney & Co), Nighthawk Radiology (Summit Partners), Healthspring (GTCR), TNS (GTCR), FreightCar America (Trimaran), Universal Compression (Castle Harlan), Veridian (Monitor Clipper, Texas Growth Fund), Compass Minerals (Apollo), Constellium (Apollo), Evertec Group (Apollo), Commercial Vehicle Group (Norwest, Baird, Onex), Bucyrus International (American Industrial Partners), Dunkin' Brands (Carlyle, Bain, Thomas H. Lee) |                       |       |                      |               |                       |
| Transaction               | Date   | Days<br>between Sales | Price | Sale<br>Vol. (\$mn.) | % Shares Sold | Holdings<br>Post Sale |
| IPO                       | 10/11/2012   | -                     | 27    | -                    | 0.0%          | 100.0%                |
| Share Sale <sup>1</sup>   | 04/16/2013   | 187                   | 42.79 | 1,722.30             | 61.6%         | 38.4%                 |
| Exit <sup>2</sup>         | 07/22/2013   | 97                    | 47.57 | 1,195.20             | 38.4%         | 0.0%                  |

<sup>1</sup> <https://www.sec.gov/Archives/edgar/data/1338750/000110465913030668/xslF345X03/a4.xml>

<sup>2</sup> <https://www.sec.gov/Archives/edgar/data/1338750/000110465913056333/xslF345X03/a4.xml>



|                           |  |
|---------------------------|--|
| <b>Portfolio Company:</b> | <b>Community Health Systems</b>  |
| Sponsor:                  | Forstmann Little & Co  |
| LBO Date:                 | 07/23/1996   |
| TEV:                      | \$1,397.1mn.   |
| Fund-Level Fees Paid:     | Management Fees \$66.46mn; Carry \$112.02mn; Total: \$178.48mn (13.4% of Gross Distributions)                          |
| Pre-IPO Ownership:        | 95.5%  |
| Notes:                    | Initial Lockup Period post IPO of 180 days, but waived by Merrill Lynch (Lead Underwriter) for the first Post-IPO Sale |
| Example for:              | One sale very early on within Lockup period (waiver), then ~3.5yrs nothing, then exit very quickly                     |

Similar Deals: Del Monte Foods (Texas Pacific Group), Trinseo (Bain Capital), Premcor (Blackstone), Digitas (Hellman & Friedman), B&G Foods (BRS, Canterbury, Protostar), Alaska Communication Services (Fox Paine), Caribou Coffee (Arcapita), Carrol's Restaurant (Madison Dearborn), DJ Orthopedics (JP Morgan), UAP Holdings (Apollo), Polo Ralph Lauren (Goldman Sachs), H&E Equipment Services (BRS), CVR Energy (Kelso)

| Transaction             | Date       | Days between Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|-------------------------|------------|--------------------|-------|-------------------|---------------|--------------------|
| IPO                     | 06/09/2000 | -                  | 13    | -                 | 0.0%          | 100.0%             |
| Share Sale <sup>1</sup> | 10/31/2000 | 144                | 27.05 | 206.98            | 14.2%         | 85.8%              |
| Share Sale <sup>2</sup> | 04/19/2004 | 1266               | 24.5  | 563.5             | 42.8%         | 43.0%              |
| Exit <sup>3</sup>       | 09/21/2004 | 155                | 24.21 | 560.09            | 43.0%         | 0.0%               |

<sup>1</sup> <https://www.sec.gov/Archives/edgar/data/1108109/000091205700046532/a2029077z242b4.txt>  
<sup>2</sup> [https://www.sec.gov/Archives/edgar/data/1018325/000089534504000268/xslF345X02/dc4-community\\_forstmannetx.xml](https://www.sec.gov/Archives/edgar/data/1018325/000089534504000268/xslF345X02/dc4-community_forstmannetx.xml)  
<sup>3</sup> [https://www.sec.gov/Archives/edgar/data/1018325/000089534504000673/xslF345X02/dc4-community\\_thodoresex.xml](https://www.sec.gov/Archives/edgar/data/1018325/000089534504000673/xslF345X02/dc4-community_thodoresex.xml)



**Portfolio Company:** TRW Automotive  
**Sponsor:** Blackstone  
**LBO Date:** 03/03/2003  
**TEV:** \$4,725mn.  
**Fund-Level Fees Paid:** Management Fees \$66.18mn; Carry \$448.15mn; Total: \$514.34mn (17.1% of Gross Distributions)  
**Pre-IPO Ownership:** 78.4%  
**Notes:** Northrop Grumman 19% ownership  
**Example for:** Long exit process with multiple gaps between exit sales. All exit sales are of very similar size, with first and last sale being the largest and second largest sale, respectively (based on NOSH sold).

**Similar Deals:** Domino's Pizza (Bain), Hertz Global (Clayton, Dubilier & Rice, Merrill Lynch, Carlyle), MedCath (KKR, Welsh Carson Anderson & Stowe), ON Semiconductor (Texas Pacific Group), Tuesday Morning (Madison Dearborn), Ruth's Chris Steakhouse (Madison Dearborn), Cinemark (Madison Dearborn, Quadrangle), Approach Resources (Yorktown Energy Partners), Dice Holdings (General Atlantic Partners, Quadrangle Capital), The Pantry (Freeman Spogli, Chase Manhattan), Quality Distribution (Apollo), Noranda Aluminium (Apollo), Prestige Brands (GTCR, TCW)

| Transaction             | Date       | Days between Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|-------------------------|------------|--------------------|-------|-------------------|---------------|--------------------|
| IPO <sup>1</sup>        | 02/06/2004 | -                  | 28    | 337.93            | 17.7%         | 82.3%              |
| Share Sale <sup>2</sup> | 06/04/2007 | 1214               | 40.45 | 404.5             | 14.7%         | 67.6%              |
| Share Sale <sup>3</sup> | 03/01/2010 | 1001               | 26.3  | 264.01            | 14.7%         | 52.9%              |
| Share Sale <sup>4</sup> | 09/09/2010 | 192                | 35.3  | 264.51            | 11.0%         | 41.9%              |
| Share Sale <sup>5</sup> | 11/15/2010 | 67                 | 48.26 | 436.29            | 13.3%         | 28.6%              |
| Share Sale <sup>6</sup> | 02/20/2013 | 828                | 59.1  | 544.63            | 13.5%         | 15.1%              |
| Exit <sup>7</sup>       | 08/05/2013 | 166                | 71.19 | 731.34            | 15.1%         | 0.0%               |

<sup>1</sup> <https://www.sec.gov/Archives/edgar/data/1070843/000100547704000581/xslF345X02/edgar123.xml>  
<sup>2</sup> [https://www.sec.gov/Archives/edgar/data/1070843/000089375007000211/xslF345X02/form4\\_ex.xml](https://www.sec.gov/Archives/edgar/data/1070843/000089375007000211/xslF345X02/form4_ex.xml)  
<sup>3</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000118143110013461/xslF345X03/md268400.xml>  
<sup>4</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000118143110046470/xslF345X03/md286162.xml>  
<sup>5</sup> <https://www.sec.gov/Archives/edgar/data/1267097/000118143110056322/xslF345X03/md291446.xml>  
<sup>6</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000118143113012044/xslF345X03/md371456.xml>  
<sup>7</sup> <https://www.sec.gov/Archives/edgar/data/1267097/000110465913061064/xslF345X03/q4.xml>



|                           |   |
|---------------------------|---|
| <b>Portfolio Company:</b> | <b>CommScope Holdings</b>   |
| Sponsor:                  | Carlyle   |
| LBO Date:                 | 10/27/2010  |
| TEV:                      | \$4,320mn.  |
| Fund-Level Fees Paid:     | Management Fees \$128.60mn; Carry \$619.61mn; Total: \$748.21mn (15.3% of Gross Distributions)  |
| Pre-IPO Ownership:        | 98.4%   |
| Notes:                    | 180 days lock-up period, still first sale post-IPO within that period (after 154 days)  |
| Example for:              | Seemingly no pattern in exit timing and all share sales are roughly the same size. Roughly 30% of NOSH are held onto until final exit sales starting in August 2016. Also: shares sold in two tranches. |

Similar Deals: American Axle (Blackstone), Team Health (Blackstone), Paycom Software (WCAS), PBF Energy (Blackstone, First Reserve), SS&C Technologies (Carlyle), Targa Resources (Warburg Pincus), Kraton Performance Polymers (Texas Pacific Group, JP Morgan), Vantiv fka Fifth Third Processing (Advent), Envision Healthcare (Clayton Dubilier & Rice), Allison Transmission (Carlyle, Onex), Burlington Coat Factory (Bain), Brixmore Property Group (Blackstone, Centerbridge), Charles River Laboratories (DLJ Merchant Banking Partners), Continental Building Products (Lone Star), Eagle Bulk Shipping (Kelso), US Silica (Golden Gate), Sprouts Farmers Markets (Apollo), Spirit Airlines (Oaktree, Indigo), Pinnacle Foods (Blackstone), Petco Animal Supplies (Texas Pacific Group, Leonard Green & Partners), J Crew (Texas Pacific Group), Tempur Pedic (TA Associates)

| Transaction             | Date       | Days between Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|-------------------------|------------|--------------------|-------|-------------------|---------------|--------------------|
| IPO #1 <sup>1</sup>     | 10/30/2013 | -                  | 14.21 | 109.31            | 5.0%          | 95.0%              |
| IPO #2 <sup>2</sup>     | 11/14/2013 | 15                 | 14.21 | 45.78             | 2.1%          | 92.8%              |
| Share Sale <sup>3</sup> | 04/02/2014 | 139                | 21.17 | 426.05            | 13.2%         | 79.6%              |
| Share Sale <sup>4</sup> | 06/18/2014 | 77                 | 22.13 | 445.37            | 13.2%         | 66.4%              |
| Share Sale <sup>5</sup> | 03/09/2015 | 264                | 30.62 | 612.4             | 13.1%         | 53.3%              |
| Share Sale <sup>6</sup> | 06/16/2015 | 99                 | 30.76 | 615.2             | 13.1%         | 40.2%              |
| Share Sale <sup>7</sup> | 05/06/2016 | 325                | 28.9  | 578               | 13.1%         | 27.0%              |
| Share Sale <sup>8</sup> | 08/29/2016 | 115                | 29.04 | 333.96            | 7.5%          | 19.5%              |
| Share Sale <sup>9</sup> | 09/26/2016 | 28                 | 30.37 | 303.7             | 6.6%          | 12.9%              |
| Exit <sup>10</sup>      | 11/16/2016 | 51                 | 33.21 | 654.8             | 12.9%         | 0.0%               |

<sup>1</sup> [https://www.sec.gov/Archives/edgar/data/933790/000120919113050097/xslF345X03/c621002\\_4x1.xml](https://www.sec.gov/Archives/edgar/data/933790/000120919113050097/xslF345X03/c621002_4x1.xml)

<sup>2</sup> [https://www.sec.gov/Archives/edgar/data/933790/000120919113052229/xslF345X03/c627515\\_4x0.xml](https://www.sec.gov/Archives/edgar/data/933790/000120919113052229/xslF345X03/c627515_4x0.xml)

<sup>3</sup> <https://www.sec.gov/Archives/edgar/data/933790/000120919114025679/xslF345X03/doc4.xml>

<sup>4</sup> <https://www.sec.gov/Archives/edgar/data/933790/000120919114042650/xslF345X03/doc4.xml>

<sup>5</sup> <https://www.sec.gov/Archives/edgar/data/933790/000120919115025154/xslF345X03/doc4.xml>

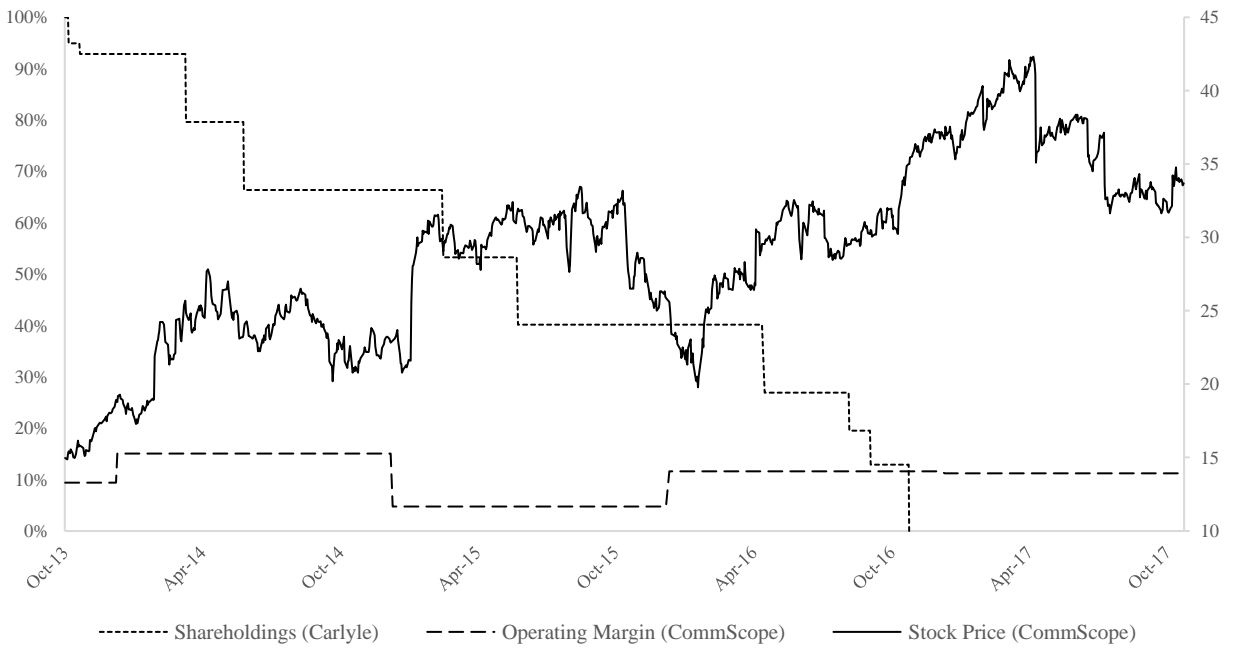
<sup>6</sup> <https://www.sec.gov/Archives/edgar/data/933790/000120919115053738/xslF345X03/doc4.xml>

<sup>7</sup> <https://www.sec.gov/Archives/edgar/data/933790/000089924316019548/xslF345X03/doc4.xml>

<sup>8</sup> <https://www.sec.gov/Archives/edgar/data/933790/000089924316028229/xslF345X03/doc4.xml>

<sup>9</sup> <https://www.sec.gov/Archives/edgar/data/933790/000089924316030102/xslF345X03/doc4.xml>

<sup>10</sup> <https://www.sec.gov/Archives/edgar/data/933790/000089924316033842/xslF345X03/doc4.xml>

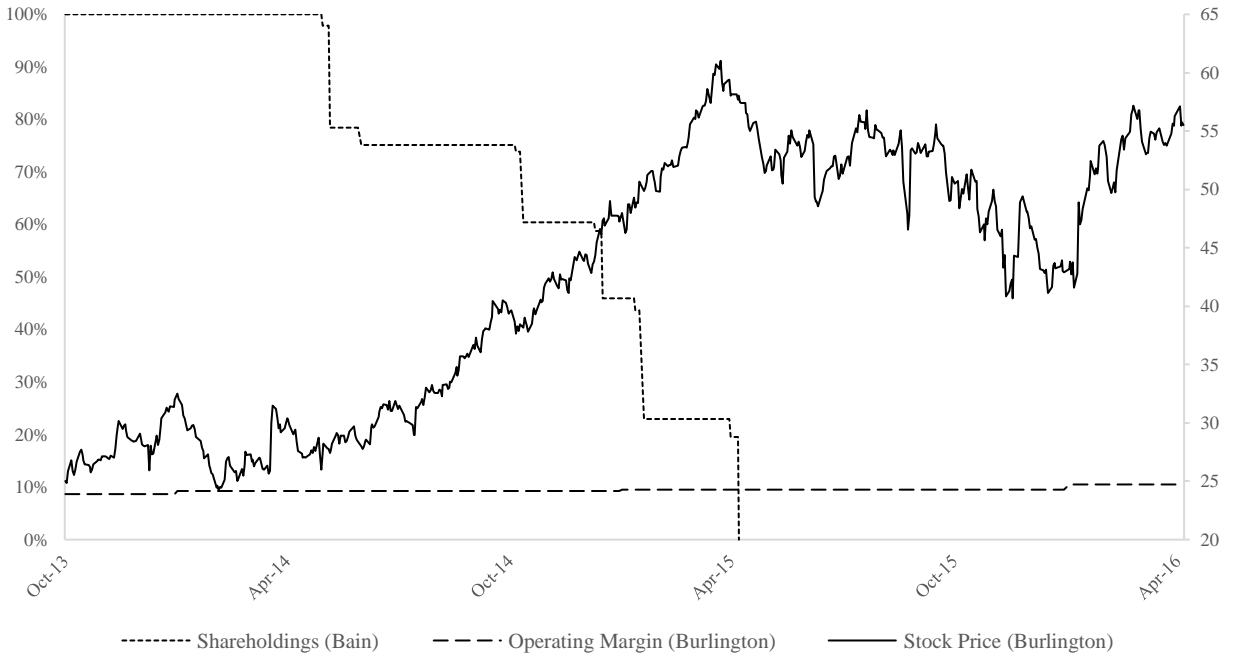


|                           |   |
|---------------------------|---|
| <b>Portfolio Company:</b> | <b>Burlington</b>   |
| Sponsor:                  | Bain  |
| LBO Date:                 | 01/18/2006  |
| TEV:                      | \$2,166.8mn.  |
| Fund-Level Fees Paid:     | Management Fees \$73.60mn; Carry \$329.41mn; Total: \$403.01mn (17.2% of Gross Distributions)   |
| Pre-IPO Ownership:        | 98.4%   |
| Notes:                    | The price is never recorded for Distributions. The displayed price in the table is the company's share price on the day the distribution was made. The Volume is therefore the combination of assumed distribution price and number of shares distributed, assuming sale on the distribution day. |
| Example for:              | Combination of Distributions and Share Sales. Warburg, Bain and GTCR seem to use this a lot.  |

Similar Deals: OSI Restaurants (Bain), Bright Horizons Family (Bain), Burger King (Bain), ChipPac (Bain), DDi (Bain), Hospital Corp. of America (Bain, KKR), Solera Holdings (GTCR), Syniverse Holdings (GTCR), VeriFone (GTCR), Knoll (Warburg Pincus), Laredo Petroleum (Warburg Pincus), American Medical Systems (Warburg Pincus), TransDigm (Warburg Pincus), Antero Resources (Warburg Pincus), Polypore (Warburg Pincus), LPL Financial (Texas Pacific Group, Hellman & Friedman), Packaging Corp. of America (Madison Dearborn), PGT Inc. (JLL Partners), Alliance Data Systems (WCAS), Monotype Imaging (TA Associates), Tempur-Pedic (TA Associates), Verso Paper (Apollo)

| Transaction                | Date       | Days between Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|----------------------------|------------|--------------------|-------|-------------------|---------------|--------------------|
| IPO                        | 10/03/2013 | -                  | 17    | -                 | 0.0%          | 100.0%             |
| Distribution <sup>1</sup>  | 04/30/2014 | 209                | 25.99 | 29.99             | 2.1%          | 97.9%              |
| Share Sale <sup>2</sup>    | 05/06/2014 | 6                  | 24.78 | 262.95            | 19.5%         | 78.4%              |
| Share Sale <sup>3</sup>    | 05/30/2014 | 24                 | 24.78 | 44.6              | 3.3%          | 75.1%              |
| Distribution <sup>4</sup>  | 10/06/2014 | 129                | 38.66 | 26.96             | 1.3%          | 73.8%              |
| Share Sale <sup>5</sup>    | 10/10/2014 | 4                  | 38.1  | 276.33            | 13.3%         | 60.4%              |
| Distribution <sup>6</sup>  | 12/10/2014 | 61                 | 43.82 | 38.6              | 1.6%          | 58.8%              |
| Share Sale <sup>7</sup>    | 12/16/2014 | 6                  | 43.1  | 301.82            | 12.9%         | 45.9%              |
| Distribution <sup>8</sup>  | 01/12/2015 | 27                 | 49.29 | 59.17             | 2.2%          | 43.7%              |
| Share Sale <sup>9</sup>    | 01/16/2015 | 4                  | 48.75 | 550.86            | 20.8%         | 23.0%              |
| Distribution <sup>10</sup> | 03/31/2015 | 74                 | 59.42 | 108.31            | 3.4%          | 19.6%              |
| Exit <sup>11</sup>         | 04/07/2015 | 7                  | 58.77 | 626.92            | 19.6%         | 0.0%               |

<sup>1</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000118143114017767/xslF345X03/rcd408376.xml>  
<sup>2</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000118143114018102/xslF345X03/rcd408617.xml>  
<sup>3</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000118143114022395/xslF345X03/rcd410846.xml>  
<sup>4</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919114062495/xslF345X03/doc4.xml>  
<sup>5</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919114063115/xslF345X03/doc4.xml>  
<sup>6</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919114075042/xslF345X03/doc4.xml>  
<sup>7</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919114076738/xslF345X03/doc4.xml>  
<sup>8</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919115004219/xslF345X03/doc4.xml>  
<sup>9</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919115005447/xslF345X03/doc4.xml>  
<sup>10</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919115031313/xslF345X03/doc4.xml>  
<sup>11</sup> <https://www.sec.gov/Archives/edgar/data/1040508/000120919115033143/xslF345X03/doc4.xml>

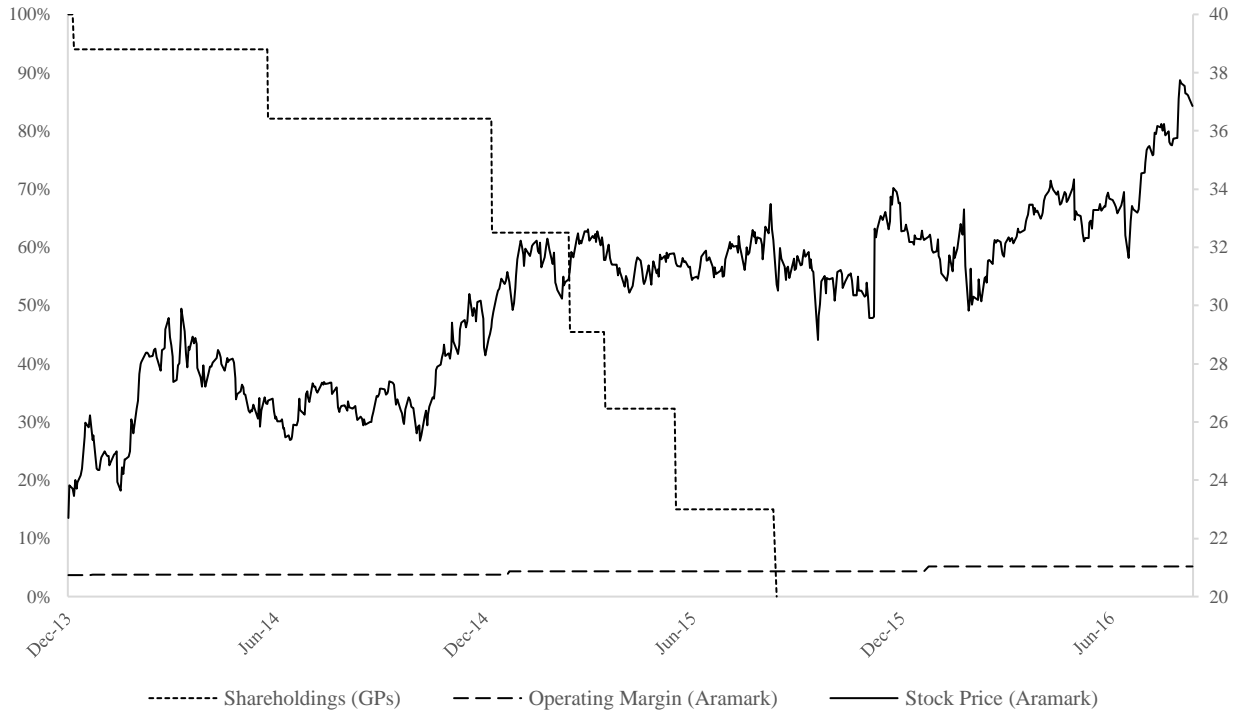


|                           |   |
|---------------------------|---|
| <b>Portfolio Company:</b> | <b>Aramark</b>  |
| Sponsor:                  | Warburg Pincus, Thomas H. Lee, Goldman Sachs, CCMP, JP Morgan   |
| LBO Date:                 | 01/26/2007  |
| TEV:                      | \$8,300mn.  |
| Fund-Level Fees Paid:     | Management Fees \$62.14mn; Carry \$126.41mn; Total: \$188.55mn (12.8% of Gross Distributions). Numbers for Warburg Pincus only. |
| Example for:              | All five sponsors have identical exit process, both in terms of % shares sold and dates   |

Similar Deals: Burger King (Bain, Goldman Sachs, Texas Pacific Group), Dollar General (KKR, Goldman Sachs, Citigroup, Wellington, Canada Pension Plan), HD Supply (Bain, Carlyle, Clayton Dubilier & Rice), Dex Media (WCAS, Carlyle), Hertz Global (Carlyle, Clayton Dubilier & Rice, Merrill Lynch), Dice Holdings (Quadrangle, General Atlantic Partners), IMS Health (Leonard Green & Partners, Texas Pacific Group, Canada Pension Plan), Avago Technologies (KKR, Silver Lake, Seletar, Geysler), Extended Stay America (Blackstone, Centerbridge)

| Transaction <sup>1</sup>      | GP             | Date       | Days betw. Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|-------------------------------|----------------|------------|------------------|-------|-------------------|---------------|--------------------|
| IPO                           | Warburg Pincus | 12/17/2013 | -                | 18.9  | 48.92             | 6.0%          | 94.0%              |
| IPO                           | Thomas H. Lee  | 12/17/2013 | -                | 18.9  | 47.88             | 6.0%          | 94.0%              |
| IPO                           | Goldman Sachs  | 12/17/2013 | -                | 18.9  | 47.88             | 6.0%          | 94.0%              |
| IPO                           | CCMP           | 12/17/2013 | -                | 18.9  | 23.95             | 6.0%          | 94.0%              |
| IPO                           | JP Morgan      | 12/17/2013 | -                | 18.9  | 23.95             | 6.0%          | 94.0%              |
| 1 <sup>st</sup> Sale Post-IPO | Warburg Pincus | 06/04/2014 | 169              | 25.54 | 131.44            | 11.9%         | 82.1%              |
| 1 <sup>st</sup> Sale Post-IPO | Thomas H. Lee  | 06/04/2014 | 169              | 25.54 | 128.74            | 11.9%         | 82.1%              |
| 1 <sup>st</sup> Sale Post-IPO | Goldman Sachs  | 06/04/2014 | 169              | 24.54 | 123.67            | 11.9%         | 82.1%              |
| 1 <sup>st</sup> Sale Post-IPO | CCMP           | 06/04/2014 | 169              | 24.54 | 61.83             | 11.9%         | 82.1%              |
| 1 <sup>st</sup> Sale Post-IPO | JP Morgan      | 06/04/2014 | 169              | 25.54 | 64.35             | 11.9%         | 82.1%              |
| 2 <sup>nd</sup> Sale Post-IPO | Warburg Pincus | 12/17/2014 | 196              | 27.02 | 228.85            | 19.6%         | 62.5%              |
| 2 <sup>nd</sup> Sale Post-IPO | Thomas H. Lee  | 12/17/2014 | 196              | 27.02 | 224.09            | 19.6%         | 62.5%              |
| 2 <sup>nd</sup> Sale Post-IPO | Goldman Sachs  | 12/17/2014 | 196              | 27.02 | 224.09            | 19.6%         | 62.5%              |
| 2 <sup>nd</sup> Sale Post-IPO | CCMP           | 12/17/2014 | 196              | 27.02 | 112.05            | 19.6%         | 62.5%              |
| 2 <sup>nd</sup> Sale Post-IPO | JP Morgan      | 12/17/2014 | 196              | 27.02 | 112.05            | 19.6%         | 62.5%              |
| 3 <sup>rd</sup> Sale Post-IPO | Warburg Pincus | 02/23/2015 | 68               | 29.88 | 220.06            | 17.0%         | 45.5%              |
| 3 <sup>rd</sup> Sale Post-IPO | Thomas H. Lee  | 02/23/2015 | 68               | 29.88 | 215.49            | 17.0%         | 45.5%              |
| 3 <sup>rd</sup> Sale Post-IPO | Goldman Sachs  | 02/23/2015 | 68               | 29.88 | 215.49            | 17.0%         | 45.5%              |
| 3 <sup>rd</sup> Sale Post-IPO | CCMP           | 02/23/2015 | 68               | 29.88 | 107.74            | 17.0%         | 45.5%              |
| 3 <sup>rd</sup> Sale Post-IPO | JP Morgan      | 02/23/2015 | 68               | 29.88 | 107.74            | 17.0%         | 45.5%              |
| 4 <sup>th</sup> Sale Post-IPO | Warburg Pincus | 03/26/2015 | 31               | 32.16 | 183.76            | 13.2%         | 32.3%              |
| 4 <sup>th</sup> Sale Post-IPO | Thomas H. Lee  | 03/26/2015 | 31               | 32.16 | 179.95            | 13.2%         | 32.3%              |
| 4 <sup>th</sup> Sale Post-IPO | Goldman Sachs  | 03/26/2015 | 31               | 32.16 | 179.95            | 13.2%         | 32.3%              |
| 4 <sup>th</sup> Sale Post-IPO | CCMP           | 03/26/2015 | 31               | 32.16 | 89.97             | 13.2%         | 32.3%              |
| 4 <sup>th</sup> Sale Post-IPO | JP Morgan      | 03/26/2015 | 31               | 32.16 | 89.97             | 13.2%         | 32.3%              |
| 5 <sup>th</sup> Sale Post-IPO | Warburg Pincus | 05/27/2015 | 62               | 31.47 | 236.03            | 17.3%         | 15.0%              |
| 5 <sup>th</sup> Sale Post-IPO | Thomas H. Lee  | 05/27/2015 | 62               | 31.47 | 157.35            | 11.8%         | 20.5%              |
| 5 <sup>th</sup> Sale Post-IPO | Goldman Sachs  | 05/27/2015 | 62               | 31.47 | 157.35            | 11.8%         | 20.5%              |
| 5 <sup>th</sup> Sale Post-IPO | CCMP           | 05/27/2015 | 62               | 31.47 | 118.01            | 17.7%         | 14.6%              |
| 5 <sup>th</sup> Sale Post-IPO | JP Morgan      | 05/27/2015 | 62               | 31.47 | 118.01            | 17.7%         | 14.6%              |
| Exit Sale                     | CCMP           | 07/01/2015 | 35               | 30.98 | 96.44             | 14.6%         | 0%                 |
| Exit Sale                     | JP Morgan      | 07/01/2015 | 35               | 30.98 | 96.44             | 14.6%         | 0%                 |
| Exit Sale                     | Warburg Pincus | 08/21/2015 | 86               | 32.3  | 210.5             | 15.0%         | 0%                 |
| Exit Sale                     | Thomas H. Lee  | 08/21/2015 | 86               | 32.3  | 281.84            | 20.5%         | 0%                 |
| Exit Sale                     | Goldman Sachs  | 08/21/2015 | 86               | 32.3  | 285.01            | 20.5%         | 0%                 |

<sup>1</sup> SEC links omitted for reasons of brevity, can be provided upon request.

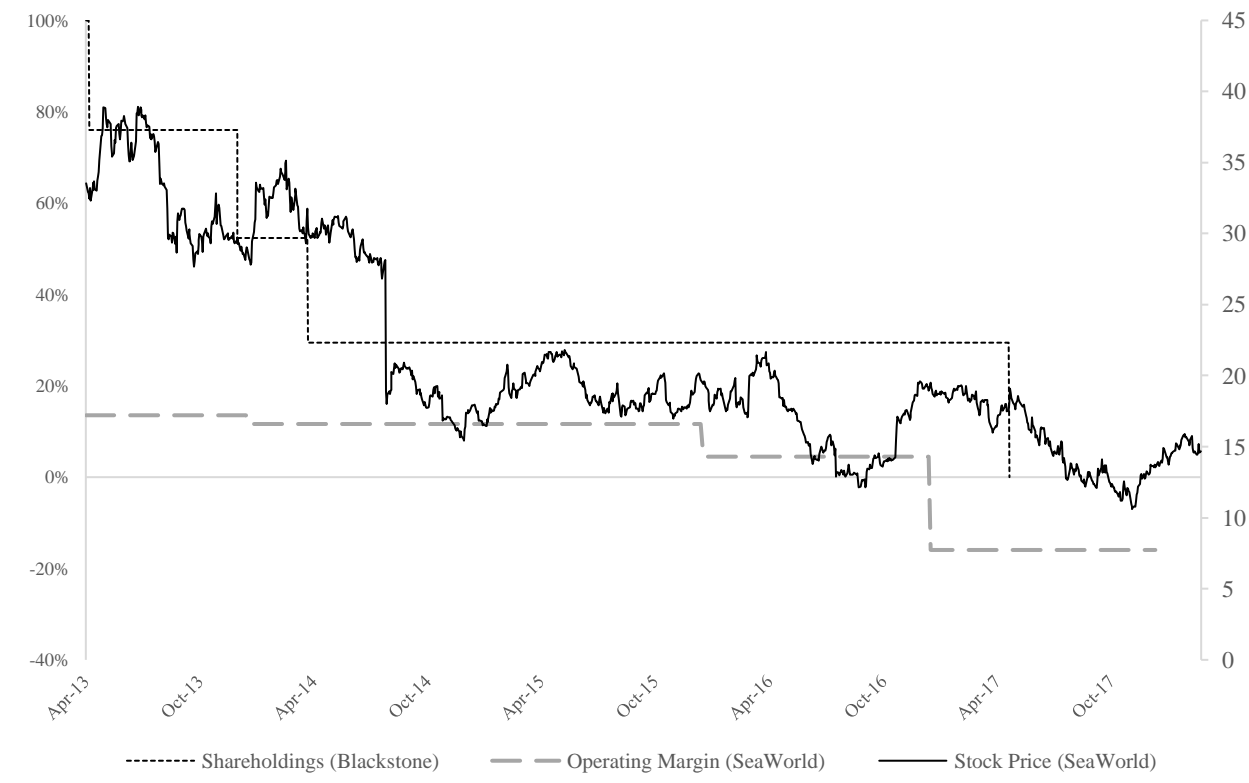


|                           |   |
|---------------------------|---|
| <b>Portfolio Company:</b> | <b>SeaWorld Entertainment</b>   |
| Sponsor:                  | Blackstone  |
| LBO Date:                 | 10/07/2009  |
| TEV:                      | \$2,503mn.  |
| Fund-Level Fees Paid:     | Management Fees \$94.35mn; Carry \$347.86mn; Total: \$442.21mn (15.2% of Gross Distributions) |
| Pre-IPO Ownership:        | 100%  |
| Example for:              | Sale of Blackstone's remaining 25% stake in singular M&A transaction after four prior sales   |

Similar Deals: GlobeSpan (Texas Pacific Group), Gulfstream Aerospace (Forstmann Little), TubeCity IMS (Onex), Emergency Medical (Onex), Prime Service (Investcorp), Morton's Restaurant (Castle Harlan, Laurel Crown), Educate (Citigroup, Apollo), AMIS (Citigroup, Francisco Partners), Dex Media (Carlyle, WCAS), Athlon Energy (Apollo), Eagle Test Systems (TA Associates), rue21 (Apax), Watkins-Johnson (Fox Paine), Domain Energy (First Reserve), LIN TV (Hicks Muse)

| Transaction <sup>1</sup> | Date       | Days between Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|--------------------------|------------|--------------------|-------|-------------------|---------------|--------------------|
| IPO <sup>2</sup>         | 04/24/2013 | -                  | 25.38 | 505.06            | 24.0%         | 76.0%              |
| Share Sale <sup>3</sup>  | 12/17/2013 | 237                | 28.88 | 563.16            | 23.5%         | 52.4%              |
| Share Sale <sup>4</sup>  | 04/09/2014 | 113                | 28.88 | 548.72            | 22.9%         | 29.5%              |
| M&A Exit <sup>5</sup>    | 05/08/2017 | 987                | 23    | 561.47            | 29.5%         | 0.0%               |

<sup>1</sup> Some sales recorded in multiple filings. For reasons of brevity, only one filing is referenced for each transaction.  
<sup>2</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000118143113023459/xslF345X03/rrd377334.xml>  
<sup>3</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000118143113063140/xslF345X03/rrd397427.xml>  
<sup>4</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000120919114026797/xslF345X03/doc4.xml>  
<sup>5</sup> <https://www.sec.gov/Archives/edgar/data/1070844/000089924317012674/xslF345X03/doc4.xml>



|                           |  |
|---------------------------|--|
| <b>Portfolio Company:</b> | <b>Warner Music Group</b>  |
| Sponsor:                  | Thomas H. Lee, Bain, Providence Equity   |
| LBO Date:                 | 02/15/2004   |
| TEV:                      | \$2,898mn.   |
| Fund-Level Fees Paid:     | Management Fees \$68.82mn; Carry \$103.24mn; Total: \$172.06mn (16.0% of Gross Distributions). Numbers for Thomas H. Lee only.                               |
| Pre-IPO Ownership:        | 80.5% jointly (THL 48.6%, Bain 20.8%, Providence 11.1%)  |
| Example for:              | No share sale for over 6 years, then complete sale in one single M&A transaction. Deal had no financial distress etc. (like e.g. Freescale Semiconductor)    |
| Similar Deals:            | Freescale Semiconductor (Blackstone, Carlyle, Permira, Texas Pacific Group), Golfsmith (Atlantic Equity), Sealy (KKR), Spinnaker Exporation (Warburg Pincus) |

| Transaction <sup>1</sup> | GP            | Date       | Days Betw. Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|--------------------------|---------------|------------|------------------|-------|-------------------|---------------|--------------------|
| IPO                      | Thomas H. Lee | 05/11/2005 | -                | -     | -                 | 0%            | 100%               |
| IPO                      | Bain          | 05/11/2005 | -                | -     | -                 | 0%            | 100%               |
| IPO                      | Providence    | 05/11/2005 | -                | -     | -                 | 0%            | 100%               |
| M&A Sale                 | Thomas H. Lee | 07/20/2011 | 2261             | 8.25  | 464.92            | 100%          | 0%                 |
| M&A Sale                 | Bain          | 07/20/2011 | 2261             | 8.25  | 198.74            | 100%          | 0%                 |
| M&A Sale                 | Providence    | 07/20/2011 | 2261             | 8.25  | 106.47            | 100%          | 0%                 |

<sup>1</sup> Sales reported across different filings, omitted for reasons of brevity. Can be provided upon request.



|                           |   |
|---------------------------|---|
| <b>Portfolio Company:</b> | <b>Sirva</b>  |
| Sponsor:                  | Clayton, Dubilier & Rice  |
| LBO Date:                 | 11/19/1999  |
| TEV:                      | \$677.67mn.   |
| Fund-Level Fees Paid:     | Management Fees \$20.11mn; Carry \$57.17mn; Total: \$77.28mn (17.1% of Gross Distributions)   |
| Pre-IPO Ownership:        | 80.1%   |
| Notes:                    | -   |
| Example for:              | Representative Chapter 11 deal. GP sells shares in IPO and Secondary Offering but retains 53% thereafter until Chapter 11. Exit happens in Chapter 11 procedure (unclear how, for how much) as Sirva re-filed with SEC and CDR was not listed as shareholder anymore.   |
| Similar Deals:            | AMF Bowling (Goldman Sachs, Blackstone, Kelso), Anchor Glass (Cerberus), Boyds Collection (KKR), Citadel Broadcasting (Forstmann Little), Verso Paper (Apollo), hhgregg Inc. (Freeman Spogli), Goodman's Stores (Sun Capital), RHI Entertainment (Kelso), GateHouse Media (Fortress), CHC Group (First Reserve) |

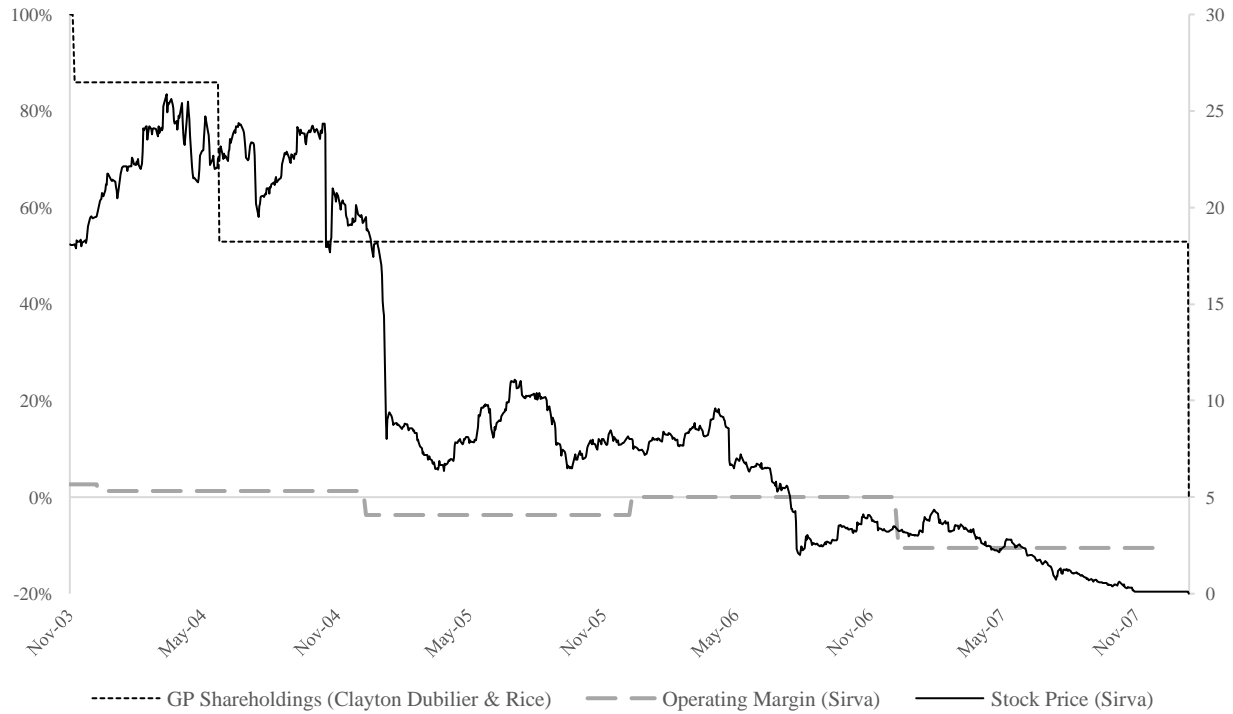
| Transaction             | Date      | Days Betw. Sales | Price | Sale Vol. (\$mn.) | % Shares Sold | Holdings Post Sale |
|-------------------------|-----------|------------------|-------|-------------------|---------------|--------------------|
| IPO <sup>1</sup>        | 12/1/2003 | -                | 18.5  | 118.49            | 14.0%         | 86.0%              |
| Share Sale <sup>2</sup> | 6/15/2004 | 197              | 22    | 330.50            | 32.9%         | 53.0%              |
| Chapter 11              | 2/5/2008  | 1330             | -     | -                 | -             | -                  |

<sup>1</sup> <https://www.sec.gov/Archives/edgar/data/1074387/000118143103033857/xslF345X02/rrd22751.xml>

<sup>2</sup> <https://www.sec.gov/Archives/edgar/data/942674/000118143103033858/xslF345X02/rrd22750.xml>

<sup>3</sup> <https://www.sec.gov/Archives/edgar/data/942674/000118143104030854/xslF345X02/rrd45211.xml>

<sup>4</sup> <https://www.sec.gov/Archives/edgar/data/1074387/000118143104030857/xslF345X02/rrd45285.xml>



## Online Appendix 6. Post-IPO Performance: Robustness Check with Alternative Sample

This table repeats the analysis presented in Table 4 of the main paper using a different sample. It shows summary statistics of absolute and relative stock price performances using a sample of 337 Private Equity-backed IPOs between 1995 and 2013 identified through Preqin data and compiled without applying the filters used to determine the buyout-backed IPOs in our main sample. Numbers in brackets are p-values indicating the statistical significance of the differences in means and medians from the numbers reported in Table 4 in the paper. All reported numbers are in %.

| Panel B                           | Lockup          |                | 12 Months       |                | 24 Months       |                  | 36 Months        |                  |
|-----------------------------------|-----------------|----------------|-----------------|----------------|-----------------|------------------|------------------|------------------|
|                                   | Mean            | Median         | Mean            | Median         | Mean            | Median           | Mean             | Median           |
| Avg. Monthly Raw Return           | 2.80<br>[0.05]  | 1.51<br>[0.21] | 1.91<br>[0.10]  | 1.05<br>[0.29] | 1.37<br>[0.06]  | 0.07<br>[0.36]   | 0.09<br>[0.56]   | 0.05<br>[0.87]   |
| Buy-and-Hold Raw Return           | 13.59<br>[0.08] | 8.88<br>[0.27] | 18.69<br>[0.38] | 9.37<br>[0.98] | 16.51<br>[0.98] | 5.07<br>[0.97]   | 12.93<br>[0.31]  | -6.01<br>[0.48]  |
| <b>Avg. Monthly Excess Return</b> |                 |                |                 |                |                 |                  |                  |                  |
| w/ S&P                            | 1.78<br>[0.42]  | 0.53<br>[0.68] | 0.83<br>[0.91]  | 0.00<br>[0.16] | 0.48<br>[0.91]  | -0.11<br>[0.10]  | 0.14<br>[0.09]   | -0.26<br>[0.00]  |
| w/ Russell 2000                   | 1.59<br>[0.50]  | 0.59<br>[0.67] | 0.77<br>[0.81]  | 0.10<br>[0.41] | 0.43<br>[0.69]  | -0.03<br>[0.33]  | 0.11<br>[0.35]   | -0.25<br>[0.04]  |
| <b>Buy-and-Hold Excess Return</b> |                 |                |                 |                |                 |                  |                  |                  |
| w/ S&P                            | 9.31<br>[0.24]  | 3.83<br>[0.59] | 9.45<br>[0.95]  | 1.54<br>[0.39] | -0.28<br>[0.16] | -11.95<br>[0.18] | -11.96<br>[0.00] | -16.95<br>[0.00] |
| w/ Russell 2000                   | 8.72<br>[0.27]  | 4.32<br>[0.77] | 10.19<br>[0.67] | 1.07<br>[0.60] | 2.13<br>[0.47]  | -9.04<br>[0.40]  | -5.78<br>[0.08]  | -16.13<br>[0.09] |
| <b>Alphas</b>                     |                 |                |                 |                |                 |                  |                  |                  |
| Jensen's Alpha w/ S&P             | 1.27<br>[0.85]  | 0.89<br>[0.48] | 0.69<br>[0.80]  | 0.35<br>[0.36] | 0.48<br>[0.96]  | 0.18<br>[0.02]   | 0.12<br>[0.25]   | -0.33<br>[0.00]  |
| Jensen's Alpha w/ Russell 2000    | 1.82<br>[0.94]  | 0.92<br>[0.31] | 0.92<br>[0.91]  | 0.52<br>[0.22] | 0.39<br>[0.89]  | 0.08<br>[0.00]   | 0.12<br>[0.63]   | -0.39<br>[0.00]  |
| Fama-French 3 Factor Alpha        | 1.68<br>[0.90]  | 1.10<br>[0.22] | 0.74<br>[0.86]  | 0.59<br>[0.28] | 0.40<br>[0.91]  | 0.12<br>[0.19]   | 0.10<br>[0.41]   | -0.37<br>[0.06]  |

## Online Appendix 7. LBO Gross and Net Deal Performance using PE Fund-Level Performance Data

This table displays robustness tests for Table 6. We report gross and net performance indicators calculated for the whole LBO, from the initial GP equity investment at LBO until the last share sale post-IPO, as in Table 6. We report the numbers for a subsample of N=413 deals for which we have end-of-lifetime IRR numbers of the lead PE fund. We use these end-of-lifetime IRRs to determine the deal-level carry payments. As in Table 6, we report both cash multiples and Internal Rates of Return (IRRs), using the full time series of deal-level cash flows as the basis for our calculations, including all actual deal cash in- and outflows: the GP initial LBO equity investment, all pre-IPO dividends, deal-level fees (LBO fee, monitoring fees, ‘recap’ and M&A fees, and termination fees, assuming 50% deal rebates), distributions and follow-on investments, as well as all at-IPO and post-IPO cash flows from share sales, share acquisitions, pro-rata dividend payments and share distributions. In addition to the gross (i.e. pre-fees) numbers, we also report the numbers net of management fees and carried interest. We calculate management fees by applying contractual annual management fees to the invested capital by the GP in each company. To account for industry-typical ‘cost basis’ calculations of management fees, we adjust the invested capital downward by the percentage of shares sold post-IPO to lower the effective management fee payments. To determine deal-level carried interest payments, we use the end-of-lifetime IRR of the lead PE fund invested in each respective deal. If the end-of-lifetime fund IRR surpasses the fund hurdle rate, we deduct the carried interest off each distribution. We obtain all fund-specific data from Preqin’s ‘Terms & Conditions’ and fund performance database, and match it to the GP’s lead investment fund in each GP-portfolio company pair. Modes for management fee, hurdle rate and carried interest are 1.5%, 8% and 20%, respectively. Below the performance numbers, we report the full fee volumes per deal (in \$mn.), as well as the deal fees as percentage of the total deal distributions (in \$mn.). The numbers in brackets for the hypothetical exit patterns are p-values indicating the statistical significance of the differences in means (t-tests) and medians (Wilcoxon) of the performance metrics between each respective hypothetical exit patterns and the actual share sale exits. For the actual share sale patterns, they indicate the statistical significance of the difference from 1. Reported IRRs are winsorized at the 98% level.

|   | Actual Share Sales |                 |
|---|--------------------|-----------------|
|   | Mean               | Median          |
| <b>Gross Full Deal Performance (Pre-Fees)</b> |                    |                 |
| Gross Cash Multiple                           | 4.21<br>[0.00]     | 3.18<br>[0.00]  |
| Gross IRR (%)                                 | 51.3%<br>[0.00]    | 31.9%<br>[0.00] |
| <b>Net Deal Performance</b>                   |                    |                 |
| Net Cash Multiple                             | 3.35<br>[0.00]     | 2.73<br>[0.00]  |
| Net IRR (%)                                   | 42.3%              | 25.8%           |
| Management Fees (\$mn)                        | 22.53              | 8.21            |
| Carried Interest (\$mn)                       | 79.06              | 28.74           |
| Total Fees (\$mn)                             | 101.59             | 42.86           |
| <b>Fees as % of Distributions</b>             |                    |                 |
| Management Fees                               | 5.2%               | 2.6%            |
| Carried Interest                              | 10.1%              | 12.5%           |
| Total Fees                                    | 15.3%              | 16.4%           |

## Online Appendix 8. Full Deal Cash Flows

The table below shows all cash flows associated with a single deal in our sample, using the representative example of Blackstone's LBO of SeaWorld. The cash flows are shown in chronological order, starting with the equity investment at LBO and ending with the last share sale post-IPO. The left part of the table shows all pre-IPO cash flows, the right part all post-IPO cash flows. Next to the initial equity investment at LBO and all cash flows from share sales, we report all pre- and post-IPO dividend payments, and fees based on the management service agreement ('MSA') between Blackstone and SeaWorld (LBO fees, advisory fees and the termination fee at IPO). All these are original numbers taken from SEC filings. For MSA-based fees we assume a 50% rebate rate. We also report all hypothetical management fees and carried interest payments. The management fee is calculated based on the lead fund's management fee and the equity cash injection of the GP in the deal. The lead fund is Blackstone Capital Partners V, the invested equity at LBO is \$1,010mn (Note 1). As Preqin, our data provider for fund terms and conditions, only releases fund fee data in an anonymized way, we calculate the fee by averaging the management fees of all funds in the Preqin universe with the same vintage year (2006) and size (funds with >\$2bn. capital raised) as Blackstone Capital Partners V. This is 1.88% p.a. or 0.47% quarterly. Applied to the \$1,010mn equity injection gives us \$4.747mn per quarter (Note 2). Following each share sale, we reduce the fee by the percentage of shares sold. The first time this happens is following the \$505.062mn at-IPO sale (Note 3). This represents a 24.03% reduction in the initial shareholdings, which is why we reduce the quarterly fees of \$4.747mn by 24.03% to \$3.606mn (Note 4). We do the same again after the first post-IPO sale which reduces the shareholdings to 52.42% and the quarterly fee accordingly (Note 5: \$2.488mn. = 52.24% of \$4.747mn.) and for every subsequent share sale. As with management fees, we use Blackstone Capital Partners V peer funds in the Preqin universe to determine carried interest (20%) and the hurdle rate (8% IRR). Once the deal-level IRR has surpassed the 8% hurdle, we calculate 20% off of each distribution as hypothetical carry. The first time this is the case is for the \$563.16mn post-IPO sale (Note 6) of which \$112.63mn are 20% carry. The total gross distributions as the sum of all MSA-based fees, dividends and share sales are \$2,914.52mn., resulting in a 2.886x Cash Multiple relative to the initial \$1,010mn. cash equity injection. Total management fees are \$94.35mn. (3.2% of gross distributions), total paid carry is \$347.86mn. (11.9% of gross distributions), and total fees are \$442.21mn. (15.2% of gross distributions).

| Pre-IPO         |            |             |       |      | Post-IPO        |            |             |         |      |
|-----------------|------------|-------------|-------|------|-----------------|------------|-------------|---------|------|
| Transaction     | Date       | Vol. (\$mn) | Carry | Note | Transaction     | Date       | Vol. (\$mn) | Carry   | Note |
| LBO             | 10/06/2009 | 1,010       | -     | (1)  | At IPO Sale     | 04/24/2013 | 505.062     | -       | (3)  |
| LBO Fee         | 10/08/2009 | 2           | -     |      | Dividend        | 06/18/2013 | 12.582      | -       |      |
| Management Fee  | 01/04/2010 | 4.747       | -     | (2)  | Management Fee  | 07/17/2013 | 3.606       | -       |      |
| Management Fee  | 04/04/2010 | 4.747       | -     |      | Dividend        | 09/18/2013 | 12.582      | -       |      |
| Management Fee  | 07/03/2010 | 4.747       | -     |      | Management Fee  | 10/15/2013 | 3.606       | -       | (4)  |
| Management Fee  | 10/01/2010 | 4.747       | -     |      | Post-IPO Sale   | 12/17/2013 | 563.16      | 112.63  | (6)  |
| Management Fee  | 12/30/2010 | 4.747       | -     |      | Dividend        | 12/18/2013 | 8.682       | 1.736   |      |
| Management Fee  | 03/30/2011 | 4.747       | -     |      | Management Fee  | 01/13/2014 | 2.488       | -       | (5)  |
| Management Fee  | 06/28/2011 | 4.747       | -     |      | Dividend        | 03/18/2014 | 8.682       | 1.736   |      |
| Management Fee  | 09/26/2011 | 4.747       | -     |      | Post-IPO Sale   | 04/09/2014 | 548.72      | 109.74  |      |
| Dividend        | 09/29/2011 | 110.1       | -     |      | Management Fee  | 04/13/2014 | 1.399       | -       |      |
| Management Fee  | 12/25/2011 | 4.747       | -     |      | Dividend        | 06/18/2014 | 5.126       | 1.025   |      |
| Advisory Fee    | 12/31/2011 | 3           | -     |      | Management Fee  | 07/12/2014 | 1.399       | -       |      |
| Management Fee  | 03/24/2012 | 4.747       | -     |      | Dividend        | 09/25/2014 | 5.126       | 1.025   |      |
| Dividend        | 03/30/2012 | 500         | -     |      | Management Fee  | 10/10/2014 | 1.399       | -       |      |
| Management Fee  | 06/22/2012 | 4.747       | -     |      | Management Fee  | 01/08/2015 | 1.399       | -       |      |
| Management Fee  | 09/20/2012 | 4.747       | -     |      | Dividend        | 01/09/2015 | 5.126       | 1.025   |      |
| Management Fee  | 12/19/2012 | 4.747       | -     |      | Dividend        | 03/11/2015 | 5.126       | 1.025   |      |
| Advisory Fee    | 12/31/2012 | 3.1         | -     |      | Management Fee  | 04/08/2015 | 1.399       | -       |      |
| Management Fee  | 03/19/2013 | 4.747       | -     |      | Dividend        | 06/18/2015 | 5.126       | 1.025   |      |
| Advisory Fee    | 04/14/2013 | 3.3         | -     |      | Management Fee  | 07/07/2015 | 1.399       | -       |      |
| Termination Fee | 04/19/2013 | 23.5        | -     |      | Dividend        | 09/25/2015 | 5.126       | 1.025   |      |
|                 |            |             |       |      | Management Fee  | 10/05/2015 | 1.399       | -       |      |
|                 |            |             |       |      | Management Fee  | 01/03/2016 | 1.399       | -       |      |
|                 |            |             |       |      | Dividend        | 01/13/2016 | 5.126       | 1.025   |      |
|                 |            |             |       |      | Dividend        | 03/10/2016 | 5.126       | 1.025   |      |
|                 |            |             |       |      | Management Fee  | 04/02/2016 | 1.399       | -       |      |
|                 |            |             |       |      | Dividend        | 06/16/2016 | 5.126       | 1.025   |      |
|                 |            |             |       |      | Management Fee  | 07/01/2016 | 1.399       | -       |      |
|                 |            |             |       |      | Dividend        | 09/27/2016 | 2.441       | 0.488   |      |
|                 |            |             |       |      | Management Fee  | 09/29/2016 | 1.399       | -       |      |
|                 |            |             |       |      | Management Fee  | 12/28/2016 | 1.399       | -       |      |
|                 |            |             |       |      | Management Fee  | 03/28/2017 | 1.399       | -       |      |
|                 |            |             |       |      | Last Share Sale | 05/08/2017 | 561.466     | 112.293 |      |

## Online Appendix 9. Performance of Hypothetical Share Sale Algorithms

This table presents robustness tests for three of the four absolute and relative deal-level performance benchmarks in Table 5. We calculate TVPIs, IRRs and KS-PMEs in exactly the same way as in Table 5. However, instead of using the actual post-IPO share sales as the cash flow inputs for the performance measures, we use five hypothetical post-IPO exit strategies. Algorithm (1): All shares are assumed to be fully divested at the end of the lockup period, at the share price on the first day post-lockup. Algorithm (2): IPO- and pre-lockup-end sales are assumed to have taken place at the end of the lockup period. The hypothetical GP investment is also calculated using the stock price at lockup-end. All other share sales are as recorded. Algorithm (3): Shares are sold in 5 equally large transactions, equally distributed between the IPO and 1,079 days after the IPO. The first sale is at IPO. This replicates the average sales process in our sample. Algorithm (4): Shares are assumed to be sold in 3 transactions, 4% at IPO and 48% each at 233 and 266 days after the IPO. This replicates the average sales process of the 25% of deals with the fastest exit process. Algorithm (5): Shares are sold in 7 transactions: at IPO (6%), 1,502 (25%), 1,655 (21%), 1,808 (17%), 1,961 (13%), 2,114 (9%) and 2,268 (9%) days after the IPO. This replicates the average sales process of the 25% of deals with the slowest exit process. Numbers in brackets are p-values indicating the statistical significance of the differences in means (t-tests) and medians (Wilcoxon) of the performance metrics between the hypothetical exit patterns and the actual exits, as shown in Table 5.

|                        | (1)                            |        | (2)                              |        | (3)                         |        | (4)                                  |        | (5)                                  |        |
|------------------------|--------------------------------|--------|----------------------------------|--------|-----------------------------|--------|--------------------------------------|--------|--------------------------------------|--------|
|                        | <b>Full Sale at Lockup-End</b> |        | <b>Sales Start at Lockup-End</b> |        | <b>Naïve Sales Scenario</b> |        | <b>Replicating 25% Fastest Exits</b> |        | <b>Replicating 25% Slowest Exits</b> |        |
|                        | Mean                           | Med.   | Mean                             | Med.   | Mean                        | Med.   | Mean                                 | Med.   | Mean                                 | Med.   |
| TVPI                   | 1.09                           | 1.08   | 1.06                             | 1.01   | 1.14                        | 1.10   | 1.16                                 | 1.14   | 1.05                                 | 0.91   |
|                        | [0.13]                         | [0.13] | [0.00]                           | [0.00] | [0.21]                      | [0.17] | [0.30]                               | [0.16] | [0.03]                               | [0.00] |
| IRR ( <i>in %</i> )    | 28.4                           | 16.7   | 2.30                             | 1.00   | 6.17                        | 7.05   | 35.1                                 | 21.8   | -7.44                                | -2.00  |
|                        | [0.00]                         | [0.00] | [0.08]                           | [0.00] | [0.99]                      | [0.78] | [0.00]                               | [0.00] | [0.00]                               | [0.00] |
| KS-PME w/ S&P 500      | 1.06                           | 1.05   | 1.00                             | 0.96   | 1.07                        | 1.03   | 1.12                                 | 1.06   | 0.96                                 | 0.81   |
|                        | [0.43]                         | [0.09] | [0.00]                           | [0.00] | [0.07]                      | [0.01] | [0.00]                               | [0.00] | [0.00]                               | [0.00] |
| KS-PME w/ Russell 2000 | 1.05                           | 1.03   | 0.95                             | 0.94   | 1.04                        | 1.01   | 1.11                                 | 1.05   | 0.87                                 | 0.77   |
|                        | [0.01]                         | [0.00] | [0.00]                           | [0.00] | [0.00]                      | [0.00] | [0.00]                               | [0.00] | [0.00]                               | [0.00] |

## Online Appendix 10. Share Sales by Calendar Week and Month

This table shows relative frequencies of GPs' post-IPO share sales transactions and sale volumes by calendar week and month. In Panel A we report the GP post-IPO share sale transactions by calendar month over the period 1995-2017, calculated as the percentage of total share sale transactions we record in our sample across all 564 GP-LBO Company pairs. We also report mean and median US-Dollar volumes per share sale transaction. In Panel B, we report the share sale transactions by calendar week, also calculated as the percentage of total share sale transactions we record in our sample. All percentages sum up to 100%.

*Panel A*

| Month     | % of Total Sales | Sale Volume (\$mn.) |        |
|-----------|------------------|---------------------|--------|
|           |                  | Mean                | Median |
| January   | 4.60             | 111.6               | 21.9   |
| February  | 8.60             | 102.8               | 27.5   |
| March     | 9.40             | 114.8               | 47.9   |
| April     | 6.44             | 160.9               | 60.0   |
| May       | 10.76            | 107.2               | 32.9   |
| June      | 7.08             | 107.9               | 41.4   |
| July      | 7.00             | 117.1               | 19.9   |
| August    | 9.92             | 86.2                | 19.7   |
| September | 8.12             | 89.5                | 17.6   |
| October   | 6.24             | 111.6               | 18.1   |
| November  | 11.88            | 92.9                | 21.6   |
| December  | 10.00            | 123.9               | 38.4   |

*Panel B*

| Calendar Week | % of Total Sales | Calendar Week | % of Total Sales | Calendar Week | % of Total Sales |
|---------------|------------------|---------------|------------------|---------------|------------------|
| 1             | 0.08             | 19            | 2.44             | 37            | 1.36             |
| 2             | 0.96             | 20            | 2.84             | 38            | 1.84             |
| 3             | 1.12             | 21            | 2.76             | 39            | 1.96             |
| 4             | 1.16             | 22            | 2.32             | 40            | 2.12             |
| 5             | 1.16             | 23            | 2.04             | 41            | 1.76             |
| 6             | 2.28             | 24            | 2.16             | 42            | 1.56             |
| 7             | 2.12             | 25            | 1.64             | 43            | 1.08             |
| 8             | 1.96             | 26            | 1.04             | 44            | 1.32             |
| 9             | 2.28             | 27            | 1.40             | 45            | 2.08             |
| 10            | 1.60             | 28            | 1.04             | 46            | 3.28             |
| 11            | 2.48             | 29            | 1.28             | 47            | 3.48             |
| 12            | 3.04             | 30            | 1.68             | 48            | 1.88             |
| 13            | 1.52             | 31            | 2.08             | 49            | 2.84             |
| 14            | 1.60             | 32            | 2.36             | 50            | 3.04             |
| 15            | 1.48             | 33            | 2.44             | 51            | 3.80             |
| 16            | 1.60             | 34            | 2.60             | 52            | 1.20             |
| 17            | 1.40             | 35            | 2.16             | 53            | 0.32             |
| 18            | 1.44             | 36            | 1.56             |               |                  |

## Online Appendix 11. Probit Regression Models Explaining Share Sales

This table shows results of multivariate probit regression models, to provide a robustness test for the Tobit regression models as shown in Table 7 of the paper. The unit of observation is each month from IPO to exit in each GP-portfolio company pair. The dependent variable is a dummy taking the value of 1 in months in which GPs sell shares in their portfolio companies and 0 in which they do not. The IPO month and all IPO share sales are excluded, all 17 deals that fully exit at the IPO are therefore excluded. Standard errors are clustered on the GP fund-level. We report marginal effects at the means, numbers in parentheses are z-values, and asterisks indicate statistical significance at 1% (\*\*\*) , 5% (\*\*) and 10% (\*) levels. Descriptions and summary statistics of all variables are given in Appendix 1 and 2 of the main body of the paper, respectively.

|  | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     | (7)     |
|--|---------|---------|---------|---------|---------|---------|---------|
| <b>Fund Variables</b>                              |         |         |         |         |         |         |         |
| Difference IRR-Hurdle Rate (%)                     |         |         | -0.10** |         |         | -0.09*  | -0.12*  |
|  |         |         | [-2.42] |         |         | [-1.90] | [-1.86] |
| Fund IRR (%)                                       |         |         |         | -0.10** |         |         |         |
|  |         |         |         | [-2.45] |         |         |         |
| Deal in Carry (Yes=1, No=0)                        |         |         |         |         | 0.00    |         |         |
|  |         |         |         |         | [0.03]  |         |         |
| <b>GP Variables</b>                                |         |         |         |         |         |         |         |
| GP Fundraising Period (Yes=1, No=0)                |         |         | -0.00   | -0.00   | -0.00   | -0.01   | -0.01   |
|  |         |         | [-0.43] | [-0.48] | [-0.34] | [-1.47] | [-1.27] |
| <b>Stock Performance Variables</b>                 |         |         |         |         |         |         |         |
| Stock Price > IPO Price (Yes = 1, No=0)            | 0.09*** | 0.06*** | 0.09*** | 0.09*** | 0.09*** | 0.05*** | 0.03*** |
|  | [7.28]  | [4.69]  | [7.11]  | [7.09]  | [7.06]  | [3.54]  | [2.88]  |
| Absolute Monthly Stock Return (% , 1-Month Lagged) | 0.02    | 0.03    | 0.03    | 0.03    | 0.03    | 0.01    | 0.04    |
|  | [0.80]  | [1.17]  | [1.02]  | [1.01]  | [0.88]  | [0.21]  | [0.92]  |
| <b>Stock Trading Volume</b>                        |         |         |         |         |         |         |         |
| Monthly Trading Volume                             | 0.03*** | 0.08*** | 0.03*** | 0.03*** | 0.03*** | 0.02*** | 0.05*** |
|  | [3.79]  | [7.60]  | [4.20]  | [4.23]  | [3.71]  | [3.79]  | [5.49]  |
| <b>Deal Financial Variables</b>                    |         |         |         |         |         |         |         |
| EBIT Margin (%)                                    | 0.06*   | 0.06    | 0.07*   | 0.07*   | 0.07**  | 0.08*   | 0.03    |
|  | [1.85]  | [1.12]  | [1.92]  | [1.93]  | [1.99]  | [1.89]  | [1.44]  |
| Dividend Payments (\$mn.)                          | -0.05   | -0.02   | -0.06   | -0.07   | -0.06   | 0.00    | 0.06    |
|  | [-0.63] | [-0.24] | [-0.70] | [-0.72] | [-0.68] | [0.01]  | [0.63]  |
| <b>Board Variable</b>                              |         |         |         |         |         |         |         |
| Board Exit (Yes=1, No=0)                           | 0.16*** | 0.15*** | 0.17*** | 0.18*** | 0.17*** | 0.13*** | 0.12*** |
|  | [10.66] | [9.97]  | [10.76] | [10.75] | [10.74] | [6.64]  | [6.16]  |
| <b>Market Variable</b>                             |         |         |         |         |         |         |         |
| Russell 2000 EV/EBITDA Multiple                    | 0.00    | -0.00   | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
|  | [0.83]  | [-0.06] | [0.89]  | [0.93]  | [1.04]  | [0.26]  | [0.04]  |
| Monthly U.S. LBO Volume (ln \$bn.)                 | 0.00    | 0.01    | 0.00    | 0.00    | 0.00    | 0.00    | 0.02    |
|  | [0.23]  | [1.49]  | [0.77]  | [0.77]  | [0.23]  | [1.42]  | [1.54]  |
| <b>Club Deal Variable</b>                          |         |         |         |         |         |         |         |
| Share Sale by Co-Investor in Month (Yes=1, No=0)   |         |         |         |         |         | 0.19*** | 0.16*** |
|  |         |         |         |         |         | [9.28]  | [10.73] |
| GP Fixed Effects                                   | No      | Yes     | No      | No      | No      | No      | Yes     |
| Portfolio Company Fixed Effects                    | No      | Yes     | No      | No      | No      | No      | Yes     |
| Number of Observations                             | 20,234  | 20,234  | 7,262   | 7,262   | 7,262   | 4,687   | 4,687   |
| Months with Share Sales                            | 1,567   | 1,567   | 684     | 684     | 684     | 520     | 520     |
| Prob > Chi2  | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| Pseudo R-Squared                                   | 0.12    | 0.23    | 0.13    | 0.13    | 0.12    | 0.22    | 0.30    |

## Online Appendix 12. Cross-Sectional Regressions

This table shows results of cross-sectional OLS regression models. The unit of observation is a GP-portfolio company pair. The full sample is N=564 but we exclude 17 deals with full exits at IPO. The dependent variable in models (1) to (5) is the Exit Duration, calculated from IPO to final share sale ('exit') for each GP investment in a portfolio company. The dependent variable in model (6) is the Exit Length, calculated (in years) from IPO to exit for each GP investment in a portfolio company. The dependent variable in model (7) is the Post-Lockup Duration, calculated from the end of the post-IPO lockup period to exit for each GP investment in a portfolio company. Model (8) is a Cox Proportional Hazard model using exit and time to exit from IPO as 'failure' event. Censored data includes 29 deals which were still ongoing at the end of our observation period (Dec. 2017). Numbers in brackets are Hazard Ratios. Standard errors are clustered on the GP fund-level. Numbers in parentheses are t-values, asterisks indicate statistical significance at 1% (\*\*\*), 5% (\*\*) and 10% (\*) levels. Detailed descriptions and summary statistics of all variables are given in Online Appendix 14 and 15, respectively.

|  | (1)                 | (2)                 | (3)                 | (4)                 | (5)                 | (6)                 | (7)                 | (8)                |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| <b>Fund Variables</b>  |                     |                     |                     |                     |                     |                     |                     |                    |
| Fund in Carry at IPO (Yes=1, No=0)                             |                     |                     | 0.58***<br>[3.78]   |                     |                     | 0.60**<br>[2.58]    | 0.53***<br>[3.09]   | -0.45***<br>[0.64] |
| Fund IRR at IPO (%)  |                     |                     |                     | 0.92*<br>[1.77]     |                     |                     |                     |                    |
| Difference IRR-Hurdle Rate at IPO (%)                          |                     |                     |                     |                     | 0.84<br>[1.63]      |                     |                     |                    |
| Lead Fund Age at IPO (Years)                                   |                     |                     | -0.09**<br>[-2.32]  | -0.08*<br>[-1.94]   | -0.08*<br>[-1.95]   | -0.12**<br>[-2.31]  | -0.11**<br>[-2.46]  | 0.06*<br>[1.06]    |
| Fund Size (ln \$mn.)   |                     |                     | -0.10<br>[-1.08]    | -0.09<br>[-0.88]    | -0.10<br>[-0.93]    | -0.10<br>[-0.70]    | -0.13<br>[-1.09]    | -0.00<br>[1.00]    |
| <b>GP Variables</b>  |                     |                     |                     |                     |                     |                     |                     |                    |
| Historic Fundraising (ln \$mn.)                                |                     |                     | 0.03<br>[0.90]      | 0.03<br>[0.97]      | 0.03<br>[1.00]      | 0.05<br>[1.16]      | 0.04<br>[1.04]      | -0.01<br>[1.00]    |
| Time to New Fund Vintage Year (Years)                          |                     |                     | -0.04<br>[-0.85]    | -0.03<br>[-0.69]    | -0.03<br>[-0.68]    | -0.04<br>[-0.73]    | -0.05<br>[-0.96]    | 0.01<br>[1.01]     |
| <b>Stock Performance and Trading Variables</b>                 |                     |                     |                     |                     |                     |                     |                     |                    |
| ≥50% Days (Lockup to Exit) Stock Price>IPO Price (Yes=1, No=0) | -1.18***<br>[-7.96] |                     | -1.38***<br>[-7.61] | -1.34***<br>[-7.12] | -1.35***<br>[-7.16] | -1.87***<br>[-8.14] | -1.67***<br>[-8.42] | 1.03***<br>[2.79]  |
| Absolute Stock Return IPO-Exit (%)                             |                     | -0.38***<br>[-2.90] |                     |                     |                     |                     |                     |                    |
| Post-IPO Dividend Payments (ln \$mn.)                          | 0.34***<br>[5.65]   | 0.33***<br>[5.39]   | 0.24***<br>[2.99]   | 0.23**<br>[2.63]    | 0.23**<br>[2.63]    | 0.34**<br>[2.58]    | 0.23**<br>[2.60]    | -0.12<br>[0.89]    |
| Stock Trading Volume First 180 Days (%)                        | -0.02**<br>[-2.60]  | -0.01*<br>[-1.68]   | -0.02**<br>[-2.41]  | -0.02**<br>[-2.27]  | -0.02**<br>[-2.25]  | -0.08***<br>[-7.23] | -0.02**<br>[-2.18]  | 0.05***<br>[1.05]  |
| <b>Portfolio Company Variables</b>                             |                     |                     |                     |                     |                     |                     |                     |                    |
| EBIT Margin at IPO (%)   | -1.25**<br>[-2.05]  | 1.28**<br>[2.03]    | -1.99***<br>[-3.33] | -2.02***<br>[-3.34] | -2.03***<br>[-3.35] | -2.89***<br>[-4.08] | -2.19***<br>[-3.77] | 1.01***<br>[2.75]  |
| Pre-IPO TVPI   | -0.15***<br>[-2.68] | -0.17***<br>[-3.13] | -0.22**<br>[-2.61]  | -0.22**<br>[-2.46]  | -0.22***<br>[-2.45] | -0.18<br>[-1.28]    | -0.17<br>[-1.56]    | 0.05<br>[1.05]     |
| <b>IPO Variables</b>   |                     |                     |                     |                     |                     |                     |                     |                    |
| First Day Return (%)   | -0.82***<br>[-3.21] | -0.90***<br>[-3.36] | -1.08***<br>[-4.28] | -1.05***<br>[-3.98] | -1.05***<br>[-3.99] | -0.60*<br>[-1.78]   | -0.59**<br>[-2.25]  | 0.27<br>[1.31]     |
| GP Ownership Sold at IPO (%)                                   | -3.06***<br>[-9.29] | -3.18***<br>[-9.36] | -3.48***<br>[-8.35] | -3.44***<br>[-8.23] | -3.44***<br>[-8.23] | -1.46**<br>[-2.19]  | -1.64***<br>[-3.44] | 2.66***<br>[14.3]  |
| Shares sold by Issuer (Yes=1, No=0)                            | 0.29*<br>[1.72]     | 0.40**<br>[2.46]    | 0.59**<br>[2.23]    | 0.49*<br>[1.79]     | 0.48*<br>[1.79]     | 0.69**<br>[2.54]    | 0.60**<br>[2.31]    | -0.10<br>[0.91]    |
| Length LBO to IPO (in Years)                                   | -0.04<br>[-1.33]    | -0.05<br>[-1.50]    | 0.08<br>[1.60]      | 0.07<br>[1.41]      | 0.07<br>[1.40]      | 0.05<br>[0.81]      | 0.10<br>[0.72]      | -0.05<br>[0.96]    |
| <b>Board Variables</b>   |                     |                     |                     |                     |                     |                     |                     |                    |
| Board Seats GP (% of total Board Seats)                        | 0.73<br>[1.65]      | 0.70<br>[1.47]      | 0.41<br>[0.77]      | 0.50<br>[0.92]      | 0.49<br>[0.91]      | 1.24*<br>[1.83]     | 0.49<br>[0.93]      | -0.51<br>[0.60]    |
| <b>Deal Variables</b>  |                     |                     |                     |                     |                     |                     |                     |                    |
| Deal TEV (ln \$bn.)  | 0.08<br>[1.21]      | 0.07<br>[1.17]      | 0.13<br>[1.63]      | 0.14*<br>[1.79]     | 0.14*<br>[1.79]     | 0.15<br>[1.34]      | 0.14<br>[1.55]      | -0.16**<br>[0.85]  |
| Club Deal (Yes=1, No=0)  | 0.02<br>[0.11]      | 0.10<br>[0.46]      | 0.04<br>[0.18]      | 0.05<br>[0.22]      | 0.05<br>[0.21]      | 0.07<br>[0.22]      | 0.18<br>[0.75]      | -0.33<br>[0.72]    |
| Deal Leverage (% Debt of TEV)                                  | -0.11<br>[-0.33]    | -0.08<br>[-0.25]    | -0.10<br>[-0.25]    | -0.11<br>[-0.27]    | -0.11<br>[-0.27]    | -0.49<br>[-0.91]    | -0.04<br>[-0.09]    | 0.49<br>[1.63]     |
| No. Debt Facilities of LBO Debt                                | 0.02<br>[0.68]      | 0.02<br>[0.55]      | 0.01<br>[0.23]      | 0.02<br>[0.05]      | 0.00<br>[0.04]      | 0.02<br>[0.52]      | 0.01<br>[0.43]      | -0.01<br>[0.99]    |
| GP Ownership (% of Shares Held)                                | 0.63*<br>[1.76]     | 0.90**<br>[2.35]    | 0.56<br>[1.24]      | 0.42<br>[0.96]      | 0.43<br>[0.99]      | 1.39**<br>[2.65]    | 0.82*<br>[1.72]     | -1.35***<br>[0.26] |
| <b>Market Variables</b>  |                     |                     |                     |                     |                     |                     |                     |                    |
| U.S. LBO Volume in IPO Quarter (ln \$bn.)                      | 0.07**<br>[2.17]    | 0.07**<br>[2.04]    | 0.08**<br>[2.11]    | 0.07*<br>[1.79]     | 0.07*<br>[1.80]     | 0.04<br>[0.79]      | 0.08**<br>[2.02]    | -0.06*<br>[0.94]   |
| Exit Control Variables   | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                |
| GP Fixed Effects   | Yes                 | Yes                 | No                  | No                  | No                  | No                  | No                  | No                 |
| Number of Observations   | 547                 | 547                 | 341                 | 341                 | 341                 | 341                 | 341                 | 370                |
| Adj. R-Squared (Prob > Chi2 for Cox Model)                     | 0.35                | 0.27                | 0.41                | 0.40                | 0.40                | 0.38                | 0.38                | 0.00               |

### Online Appendix 13. Controlling for Post-IPO ‘MNPI’-Events in Probit Regression Models

This table shows results of multivariate probit regression models. We expand the models as reported in Online Appendix 10 to control for selected post-IPO ‘MNPI’ events, that is, events during which corporate insiders are not allowed to sell shares due to Material Non-Public Information they possess (‘blackout-periods’). We choose M&A transactions as well as corporate bond issues and the closing of syndicated loans (‘funding transactions’) as such events. On average, each GP-portfolio company pair has 1.4 M&A transactions (median of 1) between the IPO and the GP’s exit, and 0.98 funding transactions (median of 0). Of 684 months with post-IPO share sales, there are only 46 with announcements of M&A transactions (6.7%), and 67 for funding transactions (9.8%). In Models 1 and 3 we test the contemporaneous influence of M&A and funding transaction announcements on the probability of share sales, in models 2 and 4 we test the lagged influence, i.e. whether trading in the month prior to an announcement is affected by the transactions. In Model 5 we test an additional indicator for ‘private’ information GPs might possess: the difference between a portfolio company’s earnings and the quarterly consensus earnings estimate forecast taken from IBES data. We report marginal effects at the means, numbers in parentheses are z-values, and asterisks indicate statistical significance at 1% (\*\*\*) , 5% (\*\*) and 10% (\*) levels.

|  | (1)     | (2)     | (3)     | (4)     | (5)    |
|--|---------|---------|---------|---------|--------|
| <b>Fund Variables</b>                          |         |         |         |         |        |
| M&A Transaction                                | -0.04*  |         |         |         |        |
|  | (-1.66) |         |         |         |        |
| M&A Transaction (t+1)                          |         | -0.05** |         |         |        |
|  |         | (-2.09) |         |         |        |
| Funding Transaction                            |         |         | -0.01   |         |        |
|  |         |         | (-0.22) |         |        |
| Funding Transaction (t+1)                      |         |         |         | -0.07** |        |
|  |         |         |         | (2.14)  |        |
| Difference between EPS and<br>EPS forecast (%) |         |         |         |         | 0.85   |
|  |         |         |         |         | (0.79) |
| All Control Variables                          | Yes     | Yes     | Yes     | Yes     | Yes    |
| Total Number of Observations                   | 7,262   | 7,262   | 7,262   | 7,262   | 7,262  |
| Months with Share Sales                        | 684     | 684     | 684     | 684     | 684    |
| Prob > Chi2                                    | 0.000   | 0.000   | 0.000   | 0.000   | 0.000  |
| Pseudo R-Squared                               | 0.102   | 0.102   | 0.101   | 0.102   | 0.092  |

## Online Appendix 14. Description of Cross-Sectional Regression Variables

This table contains descriptions of all dependent and independent variables used across multivariate cross-sectional regression models presented in Online Appendix 11, along with the source the raw data was taken from.

| Variables   | Source    | Description   |
|---|-----------|---|
| <b>Dependent Variables</b>  |           |   |
| Exit Duration from IPO to Exit (Years)                                  | SEC       | Cash flow-weighted time (in years) from IPO to last share sale of GP in each GP-portfolio company pair. Post-IPO cash flows include all shares sales and in-kind distributions to LPs. Calculation based on various SEC filings, as explained in Online Appendix 1-2.   |
| Exit Duration from Lockup-End to Exit (Years)                           | SEC       | Cash flow-weighted time (in years) from the end of the post-IPO lockup period to last share sale of GP in each GP-portfolio company pair. Post-lockup cash flows include all shares sales and in-kind distributions to LPs. Calculation based on various SEC filings, as explained in Online Appendix 1-2.  |
| Exit Length from IPO to Exit (Years)                                    | SEC       | Years from IPO to last share sale of GP in each GP-portfolio company pair. Calculation based on various SEC filings, as explained in Online Appendix 1-2.   |
| <b>Fund Variables</b>   |           |   |
| Fund in Carry at IPO (Yes=1, No=0)                                      | Preqin    | Dummy variable taking the value of 1 if the IRR of the (lead) investment PE fund in each GP-portfolio company pair is higher than its Hurdle Rate at the time of the IPO of the respective portfolio company, and 0 otherwise. Calculation based on Preqin fund performance (IRR) and Terms & Conditions ('T&C', for Hurdle Rate) data. Preqin releases 'T&C' data anonymized (i.e. without the PE fund names). We therefore match the data by fund size and vintage year to our sample deals. Fund performance data can be matched 1:1 as all fund-level information (including names) is available. |
| Fund IRR at IPO (%)   | Preqin    | IRR of the (lead) investment PE fund in each GP-portfolio company pair at the time of the IPO of the respective portfolio company. Taken from Preqin fund performance data.   |
| Difference IRR-Hurdle Rate at IPO (%)                                   | Preqin    | Difference between IRR and Hurdle Rate of the (lead) investment PE fund in each GP-portfolio company pair at the time of the IPO of the respective portfolio company. Calculation based on Preqin fund performance (IRR) and T&C (Hurdle Rate) data. Preqin T&C data is matched by fund size and vintage year, as explained above.  |
| Lead Fund Age at IPO (Years)  | Preqin    | Age (in years) of lead fund invested in the respective portfolio company. 'Lead' fund is defined as that specific fund of each GP that holds the single most shares in each respective portfolio company. Taken from Preqin fund data.  |
| Fund Size (ln \$mn.)  | Preqin    | Volume of PE funds' Committed Capital. Taken from Preqin fund performance data.   |
| <b>GP Variables</b>   |           |   |
| Historic Fundraising (ln \$mn.)   | Preqin    | Total (US-\$) volume of committed capital in all raised funds by each GP in our sample. Calculation based on Preqin fund performance data.  |
| Time to New Fund Vintage Year (Years)                                   | Preqin    | Time (in years) between the vintage year of a GP's lead fund invested in a respective portfolio company and the vintage year of the successive fund of the same GP. Calculation based on Preqin fund data.  |
| <b>Stock Performance and Liquidity Variables</b>                        |           |   |
| $\geq 50\%$ Days (Lockup to Exit) Stock Price > IPO Price (Yes=1, No=0) | CRSP      | Dummy variable taking the value of 1 if a portfolio company's stock price is higher than the IPO offer price in $\geq 50\%$ of the trading days between the end of the lockup period and a GP's last share sale (i.e. the GP exit) in that portfolio company.   |
| Absolute Stock Return IPO-Exit (%)                                      | CRSP      | Absolute stock return of portfolio companies between IPO and exit, calculated based on the stock price at the end of the first trading day post-IPO and the stock price on the day of the last GP share sale.   |
| Post-IPO Dividend Payments (ln \$mn.)                                   | CRSP, SEC | Pro-rata post-IPO common stock dividends received by GP until final share sale. Calculated using the number of common shares held by GPs between IPO and last share sale, and per-share dividend as paid out by their portfolio companies.  |
| Stock Trading Volume First 180 Days (%)                                 | CRSP      | Average stock trading turnover in the first 180 days post-IPO, calculated as the ratio of the daily numbers of shares traded to the total number of locked up shares.   |
| <b>Portfolio Company Variables</b>                                      |           |   |
| EBIT Margin at IPO (%)  | SEC       | Portfolio company EBIT Margin in IPO (fiscal) year. Calculation based on S-1/424B and 10-K accounting data.   |
| Pre-IPO TVPI  | SEC       | Portfolio company level-TVPI based on the GP's equity investment at LBO and pre-IPO payments (dividend, share redemptions, fees etc.) from portfolio companies to GP investors. For the TVPI, the payments to GPs are measured pro rata, based on the respective GP's company %-ownership.  |

**IPO Variables**

|                                     |                 |   |
|-------------------------------------|-----------------|---|
| First Day Return (%)                | CRSP,<br>SEC    | %-difference between portfolio company IPO offer price and stock price at the end of the first day of trading. Calculation based on CRSP and SEC (for IPO price) data.                          |
| GP Ownership Sold at IPO (%)        | SEC             | Shares sold by GP in portfolio company's IPO, calculated as % of total GP shareholdings pre-IPO. Calculation based on SEC S-1/424B data.  |
| Shares sold by Issuer (Yes=1, No=0) | SEC             | Dummy variable taking the value of 1 if a portfolio company issues and sells its own shares in its IPO, and 0 if only pre-IPO shareholders sell shares. Calculation based on SEC S-1/424B data. |
| Length LBO to IPO (in Years)        | SEC,<br>Various | Length (in years) between LBO and IPO of a portfolio company. The IPO date is taken from SEC filings, the LBO date from our core LBO deal list (based on prior data, Capital IQ, Preqin).       |

**Board Variables**

|   |     |   |
|---|-----|---|
| Board Seats GP (% of total Board Seats) | SEC | Percent of board seats held by each GP investor in their portfolio companies at the time of the IPO. Original calculation based on S-1/424B data. |
|---|-----|---|

**Deal Variables**

|                                 |                               |  |
|---------------------------------|-------------------------------|--|
| Deal TEV (In \$bn.)             | SEC,<br>Various               | Total Enterprise Value in bn. US-\$ of LBO. Original calculation based on a variety of sources (SEC filings, Capital IQ/Preqin deal data, LPC and FISD/Mergent debt data), as explained in Online Appendix 1-3 and the data section.                               |
| Club Deal (Yes=1, No=0)         | SEC,<br>Various               | Dummy variable taking the value of 1 if LBO has >1 GP investor, and 0 if it has only 1 GP investor. Calculation based on a variety of LBO sources and original LBO dataset, as explained in Online Appendix 1-3 and the data section.                              |
| Deal Leverage (% Debt of TEV)   | LPC, FISD,<br>SEC,<br>Various | LBO leverage, calculated as the debt-percentage of TEV. Calculation based on LBO data (as explained in Online Appendix 1-3) and LPC Dealscan syndicated loan data and Mergent/FISD corporate note data.  |
| No. Debt Facilities of LBO Debt | LPC, FISD,<br>SEC,<br>Various | Number of different debt facilities comprising total LBO debt, including term loan facilities and corporate notes. Calculation based on LBO data (as explained in Online Appendix 1-3) and LPC Dealscan syndicated loan data and Mergent/FISD corporate note data. |
| GP Ownership (% of Shares Held) | SEC                           | GP %-share ownership in portfolio company, taken from S-1/424B filings.  |

**Market Variables**

|   |            |  |
|---|------------|--|
| U.S. LBO Volume in IPO Quarter (In \$bn.) | Capital IQ | Aggregate US-\$ volume of all US (=target based in US) LBOs in the quarter of each portfolio company's IPO, calculated using Capital IQ LBO deal data. |
|---|------------|--|

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## Online Appendix 15. Summary Statistics of Cross-Sectional Regression Variables

This table contains summary statistics for all dependent and independent variables used across multivariate cross-sectional regression models presented in Online Appendix 11.

| <b>Variables</b>   | <b>Obs.</b> | <b>Mean</b> | <b>Median</b> | <b>SD</b> | <b>25%</b> | <b>75%</b> |
|--|-------------|-------------|---------------|-----------|------------|------------|
| Exit Duration from IPO to Exit (Years)                                       | 564         | 2.01        | 1.54          | 1.74      | 0.85       | 2.66       |
| Exit Duration from Lockup-End to Exit (Years)                                | 564         | 1.80        | 1.23          | 1.82      | 0.50       | 2.45       |
| Exit Length from IPO to Exit (Years)   | 564         | 2.96        | 2.35          | 2.28      | 1.26       | 4.12       |
| Fund in Carry at IPO (Dummy: Yes=242, No=126)                                | 368         | 0.66        | 1.00          | 0.48      | 0.00       | 1.00       |
| Fund IRR at IPO (%)  | 351         | 0.16        | 0.13          | 0.19      | 0.05       | 0.24       |
| Difference IRR-Hurdle Rate at IPO (%)  | 351         | 0.08        | 0.05          | 0.19      | -0.02      | 0.16       |
| Lead Fund Age at IPO (Years)   | 423         | 4.77        | 5.00          | 2.12      | 3.00       | 6.00       |
| Fund Size (ln \$bn.)   | 418         | 2.81        | 1.43          | 3.65      | 0.60       | 3.60       |
| Historic Fundraising (ln \$bn.)  | 564         | 32.5        | 12.62         | 46.11     | 1.90       | 41.91      |
| Time to New Fund Vintage Year (Years)  | 405         | 2.95        | 3.00          | 1.92      | 2.00       | 4.00       |
| ≥50% Days (Lockup to Exit) Stock Price>IPO Price<br>(Dummy: Yes=325, No=239) | 564         | 0.58        | 1.00          | 0.50      | 0.00       | 1.00       |
| Absolute Stock Return IPO-Exit (%)   | 564         | 30.43       | 19.34         | 0.83      | -0.24      | 0.77       |
| Post-IPO Dividend Payments (ln \$mn.)  | 564         | 0.31        | 0.00          | 0.84      | 0.00       | 0.04       |
| Stock Trading Volume First 180 Days (%)                                      | 564         | 0.13        | 0.01          | 2.44      | 0.01       | 0.02       |
| EBIT Margin at IPO (%)   | 564         | 0.11        | 0.09          | 0.12      | 0.05       | 0.16       |
| Pre-IPO TVPI   | 564         | 0.54        | 0.14          | 0.92      | 0.02       | 0.69       |
| First Day Return (%)   | 564         | 0.11        | 0.06          | 0.23      | 0.01       | 0.15       |
| GP Ownership Sold at IPO (%)   | 564         | 0.12        | 0.00          | 0.21      | 0.00       | 0.17       |
| Shares sold by Issuer (Dummy: Yes=549, No=15)                                | 564         | 0.97        | 1.00          | 0.16      | 1.00       | 1.00       |
| Length LBO to IPO (in Years)   | 564         | 3.35        | 2.77          | 2.23      | 1.68       | 4.76       |
| Board Seats GP (% of total Board Seats)                                      | 564         | 0.26        | 0.23          | 0.19      | 0.13       | 0.40       |
| Deal TEV (ln \$bn.)  | 564         | 1,438.6     | 456.1         | 3,156.8   | 192.5      | 1,103.9    |
| Club Deal (Dummy: Yes=383, No=181)   | 564         | 0.68        | 1.00          | 0.47      | 0.00       | 1.00       |
| Deal Leverage (% Debt of TEV)  | 564         | 0.60        | 0.66          | 0.22      | 0.49       | 0.76       |
| No. Debt Facilities of LBO Debt  | 564         | 3.08        | 2.00          | 2.67      | 1.00       | 4.00       |
| GP Ownership (% of Shares Held)  | 564         | 0.46        | 0.41          | 0.31      | 0.18       | 0.74       |
| U.S. LBO Volume in IPO Quarter (ln \$bn.)                                    | 564         | 38.9        | 25.5          | 49.6      | 13.7       | 36.4       |