



Investing in Your Alumni: Endowments' Investment Choices in Private Equity

Roland Füss^{1,2,3} · Stefan Morkoetter⁴ · Maria Oliveira⁵

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Abstract

We investigate the role of alumni ties in university endowments' decision to invest into private equity funds. Based on a sample of 1,590 commitments made by 189 U.S. endowments into 613 funds during the period of 1995 to 2017, we show that endowments are more likely to invest into funds that are managed by the alumni of their own alma mater. This finding is more pronounced for less prestigious and less private equity experienced university endowments. Thus, our results are not only dominated by institutions with a larger proportion of active alumni in the private equity industry. Furthermore, we observe that alumni ties are not associated with better performance compared to other endowment investments where such a tie does not exist.

Keywords Alumni ties · Fund managers · Investment choice · Private equity · University endowment

JEL Classification G11 · G24 · G24

✉ Stefan Morkoetter
stefan.morkoetter@unisg.ch

Roland Füss
roland.fuess@unisg.ch

Maria Oliveira
maria.deoliveira@unisg.ch

- ¹ Swiss Institute of Banking and Finance (s/bf), University of St.Gallen (HSG), Unterer Graben 21, 9000 St.Gallen, Switzerland
- ² Center for Real Estate and Environmental Economics, Norwegian University of Science and Technology (NTNU), Trondheim, Norway
- ³ Swiss Finance Institute (SFI), Geneva, Switzerland
- ⁴ St.Gallen Institute of Management in Asia (SGI-HSG), University of St.Gallen, 110 Amoy Street, 069931 Singapore, Singapore
- ⁵ University of St.Gallen, St.Gallen, Switzerland

1 Introduction

University endowments actively invest in private equity (PE) and are known to be highly successful in the segment (Lerner et al. 2007; Sensoy et al. 2014). We argue that they are in a unique position compared to other investor types due to a network advantage. As universities educate students who may eventually work as fund managers within the private markets asset class, their endowments can have an exclusive access to a specific network within the PE industry, namely its own graduates. During the investment process, endowments may benefit from such a social tie, hereafter also referred to as “alumni tie”. First, it may serve as a channel of access granting endowments the opportunity to invest into PE funds otherwise not open and/or not known to them. Second, it may act as a channel of information in an opaque asset class such as PE, helping endowments to better assess the quality of an investment. The first channel would result in a higher probability to invest, while the second one would correlate with a superior investment performance. The conjecture that such ties may impact the investment choices of endowments is supported by anecdotal evidence. Dolan and Jesse (2018), for example, show that a substantial amount of a university’s investments goes into alumni-managed funds.

Through a unique dataset consisting of U.S. endowment commitments into PE funds¹ and the biographies of involved fund managers, we study the impact that an alumni tie, defined as an existing social tie between an university endowment and a fund manager deriving through an alumni network², has on an endowment’s investment decision and subsequent fund performance. Our dataset comprises 1,590 commitments of PE investments made by 189 different U.S. university endowments into 613 PE funds along with fund manager biographies. A total of 2,351 individual fund managers are connected to these funds. We find that, with an average of 15% of fund commitments (i.e., the absolute number of fund commitments), endowments trust a substantial amount of their capital to their own alumni (given that the average size of individual endowment commitments is USD 1,383 million among all PE funds).

We examine our main research question of whether university endowments are more likely to be invested in alumni managed funds by comparing investment rates in funds managed by alumni to counterfactual funds with similar characteristics. We further control for characteristics such as the degree of alumni presence among fund managers within a fund, as well as university rankings. We find that endowments are 70% more likely to invest into PE funds that are managed by alumni compared to similar funds with no former graduate among the fund management team. The direction and significance of this finding holds regardless of universities’ reputations, which are proxied by university rankings. For the less prominent and lower ranked institutions, alumni ties appear to be (even) more important, increasing the

¹ Our sample consists mainly of buyout funds, but it also contains venture capital (VC) and growth funds managed by PE firms also operating in the buyout space. Our initial focus on buyout stems from the fact that it is the major segment within PE in dollar amounts and where data is more readily available. We argue that facilitated access and reduced information asymmetries are the driving forces behind investments into alumni-managed funds and we believe this line of argumentation applies for all fund types, although it can be that access is of greater advantage in the highly competitive VC space. However, competition to enter successful buyout funds also exists (over 36% of buyout funds in our sample are oversubscribed). Moreover, it can be that managers of buyout funds compared to successful VC funds could more actively reach out to potential investors/endowments and tap into their networks. This is also what we consider as facilitated access.

² To further clarify, we study the connection between alumni as individuals and endowments as institutions. This contrast with the mainstream literature on network analysis, which typically looks at person-person ties. These could be interesting controls for our study that could add another layer of insights. Unfortunately, we do not include such controls due to data limitations for individuals on the endowment side.

odds of an investment into an alumni-linked fund by fivefold. The odds of an investment into an alumni-managed fund are higher and more significant in the case of oversubscribed funds. This finding supports our argumentation that an alumni tie serves as a channel of access for endowments.

Separately, we also analyze the performance of alumni-connected investments compared to other investment opportunities where similar ties do not exist in order to evaluate whether the presence of alumni ties benefits or actually hinders the performance of endowments' investment decisions. We find no consistent evidence that the presence of alumni ties is associated with over- or underperformance. However, some benefits of investing in alumni funds compared to other endowment investments may be reflected in lower search costs rather than directly manifesting in investment outperformance. In addition, we note that the role of alumni ties has diminished over time with having been of greater relevance during the period of the 1990s to the early 2000s compared to the more recent period, which is conducive to the increased level of professionalization and transparency seen in the PE industry over the last decades.³

To the best of our knowledge, this study is the first to explore the role of alumni ties in the context of endowment PE investments. We contribute to the academic literature on the role of social ties in the investment decision process and shed light into another way how alumni connections may be of importance for universities - beyond the typical specifics of alumni relationships (such as gifting or governance). Cohen et al. (2010) find against the background of public markets that educational ties appear relevant for the flow of information. Ishii and Xuan (2014) verify that while such ties may lead to more merger & acquisition (M&A) activities, they can also result in poor decision making. Fuchs et al. (2021) document that educational ties between fund and target company officers are an important predictor for PE deals. Our study complements existing work on the PE investment patterns of endowments (e.g., Lerner et al. 2007) and suggests a potential channel through which endowments tap into PE funds. The closest study to ours is that of Binfarè et al. (2021), who explore the impact of expertise and general network sizes of endowment board members on investments⁴. In contrast, our paper focuses on the educational background of fund managers and their connections to university endowments (and not directly to the staff or board members). In our study, we provide evidence that such alumni ties play an important role in the fund manager selection process.

³ According to opinions shared in a brief online survey among university endowment managers, facilitated access is seen as a particularly important channel that potentially explains the higher incidence of investments into alumni-managed funds. If some endowments mainly utilize investment consultants in their fund selection process, this potential advantage of ease of access through alumni networks may not be realized.

⁴ The authors focus on the expertise of university board of trustee members as investment committees are mainly comprised of such individuals. As part of the governing bodies of universities, boards of trustees are responsible for overseeing the management of resources and direction of institutions and their members are mainly alumni. Among the top-10 universities with most investments in alumni-managed funds in our data set (those also represent the larger endowments), we see that, while the sizes of their boards of trustees can vary significantly, they are majorly, and in some cases entirely, composed of alumni. We report this in Table 11 of the Internet Appendix. Among the ten institutions, the two with the lowest percentage of alumni in their boards (57% and 79%) are public universities. The backgrounds of those trustees are also less finance focused than the average board. We see that finance and PE backgrounds among trustees are very weakly correlated to investments in alumni-managed funds. Aside from Harvard and Stanford, which are heavily invested in alumni-managed funds (77% and 79%), the other universities show similar rates of investments into those funds, at around 20%. This, combined with data limitations (e.g., collected data for trustee members is cross-sectional and not in panel format), is why for the purpose of this paper we do not further explore the composition of trustee boards and any possible association with more or less investments into alumni-managed funds.

The remainder of the paper is as follows: In the next section, we review the related literature and provide the theoretical motivation for our testable hypotheses. Section 3 describes the data and the matching procedure of our broad set of data. Section 4 presents our empirical results along with extensive robustness tests. Section 5 concludes.

2 Social Ties, Investment Decisions, and Performance

Several studies have previously addressed the impact of social ties on investment decisions. Cohen et al. (2008) identify ties through higher education connections and find that mutual fund managers tend to invest more and earn higher investment returns in companies where managers share a similar background. The closer such similarities, e.g., due to similar majors or overlapping study periods in addition to common alma mater, the stronger the results are. The authors attribute their findings to the existent information channel where investors can obtain direct information, have facilitated access to it, and/or obtain a better grasp of management's capabilities. Their study furthermore highlights that this information premium is not only restricted to certain universities. Cohen et al. (2010) confirm that connected sell-side analysts also outperform their peers without the relevant ties before stricter regulations were implemented, which may imply that they were benefitting from direct information. Within PE, the interest in the role of social ties is increasing. Hochberg et al. (2007) identify different measures related to the concept of network centrality and, based on co-investment data, they find that venture capital (VC) funds with larger networks perform better. Fuchs et al. (2021) find evidence that buyout fund managers who share the same educational background with chief executive officers (CEOs) of target companies are more likely to win deals. This effect is particularly stronger for more exclusive ties where connections are not as abundant, such as the group outside of the top universities. Binfarè et al. (2021) focus on endowment investments into alternatives (such as PE and hedge funds) and highlight the influence of well experienced and connected endowment managers in determining allocations, as well as the impact of experience on returns.

While the impact of social ties is apparently confirmed in recent literature, empirical evidence on the effects that social ties have on performance is mixed. Kuhnén (2009) finds no significant impact on expenses and returns in favored hiring choices of mutual fund directors and advisory firms for which previous business relationships exist. With regard to M&A transactions, for example, Ishii and Xuan (2014) find that acquisitions are more likely to take place between firms with connected individuals, either from previous educational or employment experience, and that there is a negative relationship between connectedness and performance. The authors argue that network proximity may hinder decision making due to a heightened sense of trust and less due diligence, a familiarity bias, or groupthink. Meanwhile, Hochberg et al. (2007) show that well-connected VC funds perform better, while Fuchs et al. (2021) find no clear pattern on private equity deals when fund managers and target company CEOs share an educational tie. Binfarè et al. (2021) find that endowments managed by individuals with expertise in VC demonstrate superior performance, but do not show conclusive evidence arising from network sizes.

Due to their strong reputation as PE investors, there is widespread interest in understanding how university endowments invest and what their drivers of success are. In this paper, we explore how alumni relationships may play a role in their investment choices and test two hypotheses: (i) whether alumni ties increase the odds of an endowment investment into a PE fund and (ii) whether this correlates with performance. While the close connection

to alumni networks is a unique feature of endowments compared to other investors, the rationale for why it could significantly influence decisions is supported by previous studies, as mentioned above. Anecdotally, evidence that this is a relevant channel is even highlighted by endowments themselves. Yale's 2015 endowment report, for example, emphasizes the value of their alumni ties as an edge supporting its success. It lists more than 20 alumni venture capitalists and entrepreneurs, while highlighting the importance of relationships and networks, stating that the endowment's "vast experience in VC provides an unparalleled set of manager relationships, significant market knowledge and an extensive network" (Yale Investments Office 2015, p.16). The existing literature also supports such an argument as it points out that endowments have benefitted from being able to access successful funds where entry was restricted or the funds were oversubscribed (Lerner et al. 2007; Sensoy et al. 2014). We argue that one channel to get access to such funds could be via those alumni ties. The increased network proximity to alumni fund managers, who are likely to welcome investments from their own alma mater more than that of other investors, may lead to more investment opportunities through ease of access to sought-after funds. We therefore hypothesize that the existence of an alumni tie increases the odds of an endowment's investment into a PE fund.

Alumni ties could also benefit endowments as an information channel. As highlighted by Preda (2007), "a social tie is not only a pipe through which information flows, but, when viewed by a third-party observer, information in itself." While the evidence on the impact of social ties on investment performance is mixed, we argue that in the context of PE funds they could be advantageous given the opaque nature of private markets. Within PE, it is common for investors to actively tap into their networks to acquire information. As emphasized by Swensen (2009), network connections "facilitate reference checking and increase the quality of decision making" (p. 229). Importantly, this is not restricted to close relationships but also to "weak ties"⁵, as acquaintances or even individuals who are simply part of the same network may provide investment decision makers with valuable insights. Johan and Zhang (2016) exemplify the way reduced information asymmetries can benefit endowments. For a U.S. sample, they find that endowments receive more frequent and less inflated performance reports compared to other limited partner (LP) types, arguing that this improved monitoring positively impacts performance. Thus, we propose that the existence of an alumni tie correlates with a higher PE fund return achieved by the endowment.

Other possible factors driving those investments could lead to the opposite effect, however, such as homophily - the tendency for individuals of similar backgrounds to choose each other. This was suggested in Kuhnén (2009), but since the author finds inconclusive performance results, her conclusion is that different effects may balance out. For the particular case of this paper, another possible avenue relates to the importance of donation relationships universities maintain with alumni. Just as endowment returns, they are an important revenue stream and therefore universities do have a strong incentive to keep alumni close. One could argue that investments into alumni-managed PE fund could be a form of keeping relationships strong. Due to the reputational risks associated with those, we do not believe this could be a major

⁵ Granovetter (1973, 1983) highlights the importance of such "weak ties", particularly due to their role in building "bridges" between close-knit groups and therefore being better able to capture relationship dynamics for larger groups.

effect across institutions, and initial analysis, albeit with limited data availability, confirms this assumption⁶.

3 Data

We build a comprehensive dataset based on PE fund and LP commitment observations from four different data providers: PitchBook, Preqin, Dow Jones, and FactSet.⁷ While LP fund commitments are available through all these providers, merging them and cleaning for potential duplicates results in additional observations. For instance, the largest number of endowment commitments in our main sample is derived through Preqin (1,050, as shown in Table 12 of the Internet Appendix), but using other sources allows us to increase the sample size by 540 commitments or over 50%. Another benefit of considering various data sources is that we are able to extend the set of variables, and thus, include additional information otherwise not available through an individual provider. For instance, it is through PitchBook only that we are able to source fund managers' educational backgrounds, which allows us to identify potential alumni ties. Performance data is added from Preqin and Dow Jones.

Our study focuses on university endowments and PE funds based in the U.S., which is not only the largest and most mature PE market, but also hosts the largest number of active endowment investors.⁸ Our final dataset is comprised of funds that are managed by asset managers focusing on buyout funds. The manager biographies for those are provided by PitchBook. However, in case these GPs also manage funds focusing on VC and growth strategies, we also have data on these fund managers biographies. As those are not funds managed by pure-play VC and growth firms, however, we do note that they are not representative of the entire VC and growth segments. As a result, and as reported in Table 1 and Table 13 of the Internet Appendix, the VC commitments we analyze in this study (roughly 15% of all available VC commitments) tend to be bigger and perform more poorly than the entire VC segment on average.⁹ In contrast, the performance of buyout funds for which we have manager data (representing over 80% of all commitments) is largely in line with the overall segment sample.¹⁰

⁶ For donation relationships, we are only able to track disclosed gifts of over USD1 million, which are publicly available through *The Chronicle of Philanthropy* website. In addition to not being able to include significant donations below the million-dollar threshold, we are also faced with the issue that some individuals choose to stay anonymous and those may actually be the more controversial gifts (e.g., Dolan and Jesse (2018) illustrate how donations by finance industry professionals that benefit from endowment investments can be scrutinized). Out of the available 5,477 gift records from 2005 to 2017 (including those of anonymous donors, which total roughly 10%), we find that 124 of them can be attributed to someone involved in PE fund management that is identifiable in our fund staff observations, while only one gift is attributable to an alumnus connected to a fund where his alma mater is one of the limited partners and one gift is made by someone who is not an alumnus but has a fund management relationship with the university. While this may suggest that relationships with important donors do not directly overlap with PE relationships, we also cannot rule out that there is a connection between donation relationships and investments as we do not have complete information on all the gifts.

⁷ The number of observations derived from each data source is laid out in Table 12 of the Internet Appendix.

⁸ Moreover, alumni relationships may differ across countries and might be different for alumni living abroad. For instance, the tradition of gifting universities is also more popular in the U.S. compared to other countries, where education may be more publicly funded and the private philanthropic culture may not be as strong (Franz and Kranner, 2019).

⁹ Kaplan and Schoar (2005) also note that performance tends to be available for larger funds.

¹⁰ In our subsequent multiple regressions, we control for fund type to omit the potential impact due to a fund selection bias.

Table 1 Number of commitments by fund type

	All Endowment Commitments			Commitments with Fund Staff Data				
	N	Average Size (USD million)	Average IRR	Average TVPI	N	Average Size (USD million)	Average IRR	Average TVPI
All PE	3425	1383	17.13	2.02	1590	2292	14.02	1.73
Buyout	1522	2258	14.45	1.71	1248	2738	14.5	1.72
Growth	135	848	13.51	1.61	74	917	13.82	1.80
VC	1768	413	20.07	2.39	268	615	11.93	1.72
All PE with IRR	2424	1498	17.13	2.05	1312	2389	14.02	1.75
Buyout	1191	2592	14.45	1.76	1032	2841	14.5	1.75
Growth	67	1106	13.51	1.70	46	1224	13.82	1.81
VC	1166	403	20.07	2.40	234	624	11.93	1.74
All PE with TVPI	2529	1715	16.25	2.02	1349	2613	13.97	1.73
Buyout	1293	2911	14.32	1.71	1070	3101	14.33	1.72
Growth	78	1103	13.73	1.61	46	1274	14.14	1.80
VC	1158	421	18.52	2.38	233	637	12.37	1.72

The table lists descriptive statistics on endowment commitments into PE funds. It includes the *Average Size* of individual commitments, *Average IRR* and *Average TVPI* for both our entire sample of U.S. university endowment commitments into U.S.-headquartered or U.S.-focused funds and a subsample including only PE commitments into funds for which fund partner data is available. The latter is used for our main analysis and has been obtained from Pitchbook, whereas the overall data sample has been sourced from Factset, Dow Jones and Preqin as well. In addition to overall numbers, the table also show figures broken down by fund strategy types

In total, we are able to identify 3,425 commitments into 1,522 PE funds undertaken by 227 U.S. based endowments between 1995 and 2017. Of those commitments, we are able to track the fund manager biographies for 613 funds (with no missing fund size values) managed by 295 general partners (GPs) and connected to 1,590 commitments made by 189 endowments. For each of these 1,590 commitments, we have at least one individual linked at the fund level for a total of 2,351 different biographies.¹¹ The average (median) reported number of managers for each fund amounts to 7 (6). Table 1 provides a breakdown of our final dataset, of which 78% are classified as buyout funds, 5% as growth, and 17% as VC. Table 14 of the Internet Appendix shows the funds that received the most endowment commitments.

Our sample comprises commitments made into funds with vintage years ranging from 1995 until 2017. The average fund size amounts to approximately USD 2.3 billion, whereas buyout funds are larger in size (USD 2.7 billion) compared to VC (USD 0.6 billion) and growth funds (USD 0.9 billion). The number of commitments per vintage year and main performance statistics are shown in Table 2. Net internal rates of return (IRR), i.e. after fund fees and expenses, are added from both sources and are available for 1,312 endowment commitments or 76% of our funds sample. The total value to paid-in (TVPI) multiple obtained from Preqin is available for 1,349 endowment commitments or 79% of funds that received an investment from an endowment. The average fund performance amounts to an IRR (TVPI) of 14.02% (1.73). Similar to previous studies (see, e.g., Lerner et al. (2007)), commitment observations with available performance data tend to be those from larger funds. Most of the commitments in our sample are made in the 2000s, while performance shows a cyclical pattern with peaks for vintages in the mid- to late nineties as well as between 2002 to 2003 and 2009 to 2010.

We also gather information on additional 960 funds with no underlying endowment commitment but for which PitchBook also provides fund manager biographies. These are funds in which endowments theoretically could have also invested. We use this information to build a counterfactual sample that is later applied to the odds analysis of endowment investments into funds managed by alumni. Table 15 of the Internet Appendix describes the basic characteristics of these funds compared to the endowment commitment sample as presented in Table 1. Table 3 presents the number of fund commitments and average performance of selected funds for each endowment with at least one investment into a PE fund, managed by at least one alumni fund manager. Out of the total sample of 1,590 commitments, 238 are into funds with alumni fund managers and those relate to 41 different endowments. The descriptive statistics highlight that some of the larger endowments are overrepresented in our data sample, with the University of California (124), the University of Michigan (114), and the University of Texas (100), all public institutions, being among the group with the highest number of known commitments in our sample.

Some universities have a strong tradition of educating future business leaders that end up working in certain industries such as finance and including PE. This might be due to renowned (under)graduate programs or the preference of (big) financial institutions to recruit from “target schools” such as Ivy League universities. Another aspect to note is that university reputation tends to be correlated with endowment size (Lerner et al. (2008)). It is therefore not surprising that the most commonly cited schools in fund managers’ educational backgrounds also tend to be among the endowments with most commitments into funds managed by alumni connections according to our data (see Table 16 of the Internet Appendix). In this context, Harvard University is the institution at the top with 43 (77%) of 56 commitments

¹¹ In total, there are 3,703 different fund manager observations. The number of unique individuals with biographies equals 2,351 as some individuals are listed as fund managers in more than one fund.

Table 2 Endowment commitments by vintage year and performance summary

1 Vintage	2 Number of Commitments	3 Number of Commitments with IRR	4 Number of Commitments with TVPI	5 Number of Commitments with Alumni Ties	6 Number of Commitments with Alumni Ties with IRR	7 Number of Commitments with Alumni Ties with TVPI	8 Mean IRR	9 Mean TVPI
1995	40	35	35	3	3	3	36.62	2.86
1996	15	14	14	3	3	3	20.59	1.75
1997	70	68	65	6	6	6	19.63	1.98
1998	78	72	72	8	8	8	5.77	1.42
1999	61	57	55	9	6	6	7.66	1.50
2000	170	162	162	24	24	24	12.07	1.75
2001	75	50	51	16	12	12	13.61	1.77
2002	62	56	52	15	15	14	20.88	2.04
2003	42	33	33	11	8	8	23.15	1.98
2004	53	40	42	12	9	10	11.01	1.83
2005	118	103	108	22	20	20	12.07	1.78
2006	164	149	150	23	22	22	8.54	1.67
2007	106	90	90	16	12	13	12.99	1.78
2008	125	102	109	17	15	17	12.20	1.67
2009	41	29	22	6	3	2	26.56	2.31
2010	39	30	33	6	6	6	18.57	1.94
2011	64	48	54	10	7	7	15.38	1.62
2012	67	61	65	7	7	7	14.27	1.50
2013	82	57	71	10	6	8	15.46	1.45
2014	55	44	51	2	1	2	19.41	1.23

Table 2 continued

1 Vintage	2 Number of Commitments	3 Number of Commitments with IRR	4 Number of Commitments with TVPI	5 Number of Commitments with Alumni Ties	6 Number of Commitments with Alumni Ties with IRR	7 Number of Commitments with Alumni Ties with TVPI	8 Mean IRR	9 Mean TVPI
2015	8	0	8	0	—	0	—	1.22
2016	8	0	7	1	—	1	—	1.26
2017	47	12	0	11	3	—	1.72	—
Total	1590	1312	1349	238	196	199	14.02	1.73

The table presents the number of endowment commitments into PE funds per vintage year. Columns 3 and 4 list the number of commitments for which performance metrics are available (net IRR or TVPI). Mean fund performance figures (Columns 8 and 9) are calculated at the commitment level based on the observations of Columns 3 and 4. Columns 5–7 refer to the number of commitments undertaken by U.S. endowments where at least one alumna/-us who graduated from the respective university acted as fund manager

Table 3 Endowments and universities invested in alumni funds

1 University	2 Alumni-Matched Commitments	3 % of Alumni-Matched Funds	4 Commitments	5 Average IRR (%) for all Commitments	6 Average IRR (%) of Alumni-Matched Funds
Harvard University	43	77%	56	13.76	16.50
University of Michigan	35	31%	114	15.18	12.97
University of California	22	18%	124	14.69	20.38
Stanford University	15	79%	19	12.92	12.16
University of Texas	14	14%	100	10.96	8.13
Yale University	10	25%	40	14.52	14.38
University of Washington	9	15%	60	14.62	8.28
University of Chicago	8	16%	51	11.35	11.33
Princeton University	7	22%	32	14.46	12.40
University of Virginia	7	23%	31	15.78	23.77
Cornell University	6	15%	39	10.51	7.00
Amherst College	5	38%	13	12.73	18.34
Massachusetts Institute of Technology	4	10%	40	13.05	3.24
University of Pennsylvania	4	57%	7	19.63	21.23
University of Notre Dame	3	12%	25	20.50	8.23
Northwestern University	3	14%	22	12.82	13.15
Duke University	3	14%	21	9.91	18.73
Pennsylvania State University	3	17%	18	18.38	12.20
Columbia University	3	27%	11	13.68	17.70
Dartmouth College	3	30%	10	16.05	22.67
Colgate University	3	50%	6	14.15	16.00
University of Puget Sound	3	75%	4	9.50	9.50
Purdue University	2	10%	20	12.58	16.60

Table 3 continued

1	2	3	4	5	6
University	Alumni-Matched Commitments	% of Alumni-Matched Funds	Commitments	Average IRR (%) for all Commitments	Average IRR (%) of Alumni-Matched Funds
University of California, Berkeley	2	17%	12	11.45	7.05
University of Missouri	2	18%	11	13.50	21.50
University of Rochester	2	50%	4	8.70	—
University of Nebraska	2	67%	3	17.25	12.20
University of Wisconsin	1	9%	11	13.81	19.70
Denison University	1	10%	10	15.75	23.00
Colby College	1	11%	9	17.71	21.10
Ohio State University	1	11%	9	14.06	35.30
University of North Carolina at Chapel Hill	1	11%	9	3.53	12.4
Michigan State University	1	13%	8	20.37	—
Johns Hopkins University	1	17%	6	23.86	12.20
University of Utah	1	20%	5	7.80	—
Brown University	1	25%	4	17.00	5.50
Claremont McKenna College	1	33%	3	14.70	—
Babson College	1	33%	3	14.57	16.10
St John's University	1	50%	2	23.1	20
St. Lawrence University	1	100%	1	—	—
Middlebury College	1	100%	1	0.20	0.20
Wheaton College (Illinois)	1	100%	1	—	—
Others	0	0%	615	14.36	—
Total	238	14%	1590	14.01	14.64

The table presents a summary of the number and performance of commitments into PE funds by endowment. The list of endowments is ranked according to the number of commitments into funds managed by alumni (Column 2), whereas the number of total commitments into funds with fund manager data is listed in Column 4. Average net IRR performance measurements are listed for each of the two samples. The performance of all commitments is reported in Column 5 and that for commitments into funds with alumni ties is listed in Column 6

into PE funds being managed by its own alumni, as seen in Table 3. Based on an initial univariate comparison, we observe that alumni-matched funds only slightly outperform the overall sample of commitments (14.64% versus 14.01%).

In addition to the fund managers' alma mater, their degree types (e.g., Bachelor of Arts, MBA, etc.) are often listed as well. Among the 2,272 fund managers of invested funds who disclose educational backgrounds¹², 1,295 or 57% of them have MBA degrees, and thus, hold at least two degrees. However, not all fund managers disclose their conferred degree type. In total, we identify the exact types of academic degrees for 1,948 managers or 86% of those with disclosed educational credentials.

For the creation of our counterfactual sample, used as part of our empirical analysis in Section 4.1, we retrieve information on 960 additional funds that endowments could have potentially invested in, but eventually did not commit capital to (see Table 14 in the Internet Appendix). The addition of these 960 funds results in an expansion of another 1,995 different individual fund managers whose educational background is available.¹³ As seen in Table 15 of the Internet Appendix, these additional observations share similar characteristics with the main fund manager sample, with Harvard still being the most represented school (with a slightly lower percentage of 18%) and 57% of managers being MBA graduates.

Equipped with the educational background information of fund managers, we create a dummy variable that identifies the (actual or counterfactual) commitments managed by alumni. It takes the value of one if at least one fund manager attended the endowment's university. For instance, when the endowment fund of Harvard University invests into a PE fund managed by a Harvard graduate the created dummy variable equals one, or zero otherwise. In addition, we also generate variables that count the number of alumni per PE fund and the prevalence (percentage) of alumni out of total managers per fund as a way to measure the degree of connectedness between fund management and their alma mater. Funds chosen by endowments have an average of 6 (median of 5) listed individuals as part of their management teams. For the subsample of funds where there is at least one alumni tie, this number rises to an average of 8 (median of 7) of which on average 1.58 (median is 1) managers graduated from the respective university of the invested endowment fund. Funds with only one listed university endowment as an LP (as opposed to funds with multiple endowments being part of its LP base) accounts for less than 20% of all endowment commitments (see Table 4).

4 Empirical analysis

4.1 Investment choices

We start our analysis by focusing on the question of whether endowments are more likely to invest in alumni-matched funds compared to other funds. Ideally, we would know the specific fund criteria that endowments were considering before they made a decision to commit capital. As this information is not accessible, we create alternative fund pools for each actual fund investment based on general criteria such as same fund vintage year, strategy type, and size (within a range of 50% to 150% of actual fund size). For example, alternatives to commitments into a USD 1.0 billion buyout fund of vintage year 2010 would include buyout funds with the same vintage year and fund sizes between USD 500 million and USD 1.5

¹² Out of the 2,351 individual fund managers, educational information is available for 2,272 of them.

¹³ A total of 2,088 different individual fund managers are linked to those funds, while for those with educational biographies a total of 1,995 is available.

Table 4 Investments and educational ties: actual and counterfactual

Investment	No Alumni ties	Alumni ties			Total
		All ties	MBA ties	Undergraduate ties	
Actual	1,295	228	91	55	1,523
	85.1%	14.9%	6.0%	3.6%	
Counterfactual	14,322	1,231	538	293	15,590
	92.1%	7.9%	3.5%	1.9%	
Total	15,617	1,459	629	348	17,076
	91.5%	8.5%			

The table shows the number of alumni ties for the actual and counterfactual commitment samples used in the analysis of the odds of investment. Actual investment includes commitments into funds undertaken by endowments. Counterfactual investments include potential fund commitments endowments could have invested in (instead of the chosen funds) that employed the same strategy (buyout, growth, or venture), shared the same vintage year and achieved a similar size (50% to 150%), and for which fund management data is available. The number of actual investments is slightly smaller than reported in Table 2 as commitments into funds with no counterfactual alternative are excluded. Both for actual and counterfactual investments, the existence of an alumni tie, as well as the number of ties stemming specifically from MBA or undergraduate degrees, is reported

billion. Similar to the approach proposed by Kuhnén (2009), Siming (2014) and Bengtsson and Hsu (2015), the groups of alternative investments determine our counterfactual sample. We delete commitments for which we do not find counterfactual alternatives according to our criteria, so that the number of actual investments used for this identification strategy lowers slightly from 1,590 to 1,523. The number of counterfactual commitments amounts to 15,553 observations. While we match fund managers in the counterfactual sample with potential endowment investors, the number of funds managed by alumni reach approximately 8%, which is notably smaller than the 15% seen in the actual investment sample.

We recognize that not only more investment criteria may have been used by endowments to decide on an investment but also the presence of networks itself may lead to some investments not necessarily following our strict selection rule. For instance, an endowment could potentially not have been planning to allocate capital to a certain type of fund strategy until it became aware of a specific initiative. However, this would actually mean that we are underestimating the importance of alumni ties, and thus our estimates are rather conservative. While it is possible that our broad set of criteria overestimates the amount of funds that would be considered as close alternatives by endowments, there is also a possibility that our counterfactual approach does not include all potential alternatives. The average and median number of selected fund alternatives for each commitment, counting both actual and counterfactual investments, is at 24 and 17 respectively, and the maximum reaches 104.¹⁴ We do not claim to be able to reproduce the full range of potential fund alternatives, however, we do control for preferences for similar geographies, later fund sequences, existing relationships, and

¹⁴ In cases where an endowment invests into more than one fund with similar characteristics, we do not count it twice in our counterfactual set but rather keep one expanded alternative fund pool for the funds (e.g., if there are two commitments into a 2006 buyout fund, we include counterfactual funds based on the similar vintage year and type, and of sizes 50% smaller than the smallest fund and 50% larger than the largest fund). This explains why multiplying the number of actual commitments by the average number of alternatives does not lead to the counterfactual sample size.

background of fund partners.¹⁵ One can also argue that different finance teams at the endowment level may follow different investment styles, and this heterogeneity among endowments might systematically affect our results. Moreover, investment behavior, or simply the number of investment options available (i.e., competition among investors to access funds), may also change depending on the investment environment of each year and it may be different across fund types. For example, the options to invest into smaller VC funds may be more limited compared to larger buyout funds, which could impact the effect that we see for alumni ties. We address these concerns in our identification strategy by including multi-way fixed effects to control for specific endowment, vintage years, and fund strategy types. The main model specification is as follows:

$$\ln\left(\frac{p_{i,j}}{1 - p_{i,j}}\right) = a + \beta_1 \text{Alumni}_{i,j} + \beta_2 \text{Fund Size}_i + \beta_3 \text{Fund Sequence}_i + \beta_4 \text{Same State}_{i,j} + \beta_5 \text{GP Relationship}_{i,j} + \beta_6 \text{Experience}_i + \text{Fixed Effects} + \epsilon_i \quad (1)$$

Our binary dependent variable $Y^{i,j}$ equals one when a commitment in fund i is made by an endowment j , and zero when an alternative fund could have been considered as a potential investment according to our criteria but was actually not chosen. We use a logistic regression model, where the left hand-side of the equation represents the log of the odds of $Y^{i,j}$, with $p^{i,j}$ being the probability of $Y^{i,j}$ being equal to one. Our main variable of interest is $\text{Alumni}^{i,j}$, which takes the value of one for funds where the educational background of managers matches the endowments' universities and zero where there is no such link. We also show results for variations of our independent variable in Table 5, breaking it down by the degree of commonality (i.e., the number or percentage of individuals with the same background within a fund), degree types (although not available for all alumni ties), and university rankings. Fund Size_i and Fund Sequence_i are the natural logarithm of final fund sizes (in USD million) and the sequences of funds managed within fund families (managed by the same GP). $\text{Same State}^{i,j}$ is a dummy variable that equals to one when endowments and fund headquarters are located within the same U.S. state and controls for a potential home bias, as suggested by Hochberg and Rauh (2013). Over 11% of endowment investments in our sample are within the same state, which compares to just below 6% in the counterfactual sample. $\text{GP Relationship}^{i,j}$ is another dummy that equals one when it indicates that an endowment has prior history in investing with a manager and zero otherwise.¹⁶ Table 17 of the Internet Appendix also shows results where we control for previous GP performance in a subsample for which such information is available. The estimates are in line with our main results of Table 5. Experience_i represents a set of three variables related to the percentage of fund managers that have backgrounds in consulting, banking, and finance industry, similarly to the controls applied in Fuchs et al. (2021).

Table 5 shows the results derived from a logistic regression with coefficients shown in log odds. We confirm our first hypothesis that endowments are more likely to invest into funds with an alumni tie. After exponentiation of the coefficients, we see that such tie increases the odds of an investment by a factor of 1.70, i.e. *ceteris paribus*, the odds of an endowment investment into an alumni-linked fund are 70% higher than in other funds. By breaking

¹⁵ We refer to Section 4.3 for a series of robustness checks in which we also control for a potential selection bias of our counterfactual sample.

¹⁶ Note that, among actual investments in the sample, over 40% were not first-time commitments to a manager, compared to less than 2% in our counterfactual sample.

down the ties by degree types, our results remain significant across different degrees, while appearing to be stronger for post-graduate ties and, particularly, for MBA ties.

As previously noted, we observe in our educational background data sample (Table 14 of the Internet Appendix) that certain universities, particularly the higher-ranked institutions with the biggest endowments, have a more abundant alumni presence in PE fund management than others. To test whether the alumni connection matters for different types of institutions, we further categorize our alumni tie variable according to school rankings. We classify American universities according to the QS World University Rankings list for 2010. Therefore, a university is defined as a top-20 school if it is among the top-20 institutions in the worldwide ranking. We also divide MBA ties according to the Financial Times 2010 Global MBA ranking into top-10 (in the United States) and others. As there is a lower number of universities

Table 5 The odds of investment

	Dependent variable: Investment				
	1	2	3	4	5
Alumni tie	0.531*** (0.194)				
MBA alumni tie		0.687*** (0.190)			
Undergraduate tie			0.409** (0.207)		
Postgraduate tie				0.684*** (0.236)	
Percentage of alumni					0.815*** (0.312)
Fund size (log)	0.600*** (0.037)	0.606*** (0.038)	0.607*** (0.037)	0.605*** (0.038)	0.611*** (0.037)
Fund sequence (log)	-0.223*** (0.060)	-0.224*** (0.058)	-0.223*** (0.059)	-0.224*** (0.058)	-0.225*** (0.059)
Same state	0.559*** (0.200)	0.581*** (0.204)	0.639*** (0.195)	0.580*** (0.205)	0.592*** (0.199)
Previous GP Relationship	4.124*** (0.171)	4.141*** (0.172)	4.125*** (0.167)	4.134*** (0.174)	4.126*** (0.171)
Consulting experience (%)	0.416*** (0.143)	0.423*** (0.146)	0.422*** (0.145)	0.426*** (0.145)	0.421*** (0.144)
Banking experience (%)	-0.712*** (0.118)	-0.708*** (0.118)	-0.709*** (0.118)	-0.711*** (0.118)	-0.709*** (0.118)
Accounting experience (%)	0.211 (0.308)	0.210 (0.309)	0.224 (0.309)	0.215 (0.307)	0.222 (0.309)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes

Table 5 continued

	Dependent variable: Investment				
	1	2	3	4	5
Observations	15,641	15,641	15,641	15,641	15,641
Pseudo R-squared	0.3116	0.3100	0.3092	0.3103	0.3095

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main regression described in Eq. 1 and various model specifications, where the binary dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual approach, which classifies funds of similar vintages, strategy types and size (50% to 150% of invested fund) as investment alternatives to each actual investment. Each column uses a slightly different variation of the main independent dummy variable *Alumni tie*, which equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* shows whether an alumni tie is generated through an MBA degree (individuals with other degrees and an MBA from the same university are also accounted as showing an MBA tie). *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for such degree levels. *Percentage of alumni* is the proportion of a fund's managers that attended the same university of any existing tie. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs, respectively. *Same state* indicates whether fund offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with the GP that manages the chosen fund. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in these respective areas. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

that offer MBA programmes, top universities represent an even larger portion of the sample for this type of degree.¹⁷

To further ensure that our main variable is not influenced by the dominance of alumni from high-ranked universities working in the PE industry, we create a new independent variable, which we refer in the following as “scaled” alumni tie. The introduction of this variable reflects on the idea that there may be situations where an alumni tie with an endowment can be an exclusive feature no other competing fund possesses. Thus, it can be a differential that may impact the corresponding investment odds.

$$Scaled\ tie_{i,j} = \frac{Actual\ tie_{i,j}}{\sum_{i=1}^n Alumni\ tie_{i,j}}. \quad (2)$$

The “scaled” alumni tie variable in Eq. 2 is defined as the number of alumni ties in actual investments divided by the number of total alumni ties in actual and counterfactual investments within the same criteria group (according to fund strategy, vintage, and size). The value of this variable ranges from zero to one, i.e. Eq. 2 transforms a binary variable into a probability. A value of one represents the situation where, among alternative funds, only the chosen fund had one or more alumni managers from the endowment's university. It therefore reaches the maximum degree of exclusivity. A value of zero in turn represents the scenario where there are no matches. Accordingly, values between zero and one mean that there were other possible funds to invest that were also managed by alumni. For example, in our data we see that, among 45 possible similar buyout funds with vintage 2000, MIT Investment Management Company selected the only fund where we identify an alumni tie. Therefore, its scaled tie equals to 1. Meanwhile, the scaled tie equals 0.0625 for Harvard Management

¹⁷ We observe that almost 70% of MBA ties come from the top-10 business schools.

Company for its investment in 2012 buyout fund since, in addition to the matched alumni in the actual investment, there are 15 other funds among 21 counterfactual opportunities that also have at least one alumna among its managers (e.g., $1/16 = 0.0625$). Average scaled tie values by rankings are reported in Table 6.

Results of Table 6 highlight that, on average, the higher the ranking position of the university is, the lower the exclusivity ratio. Under the assumption, and as shown in Table 6, that endowments are indeed more likely to invest into funds managed by their own alumni, this finding is not surprising. Graduates of lower ranked universities are underrepresented in the PE industry and are less likely to appear with an alumni match both in the actual and counterfactual sample. Thus, this leads to higher exclusivity ratios. Table 6 represents a first evidence that universities with a smaller footprint in the PE industry tend to rely more on alumni ties when making PE investments. Table 7 further elaborates on this hypothesis within a multivariate setting.

Columns 1–4 of Table 7 show results for the regressions on the odds of investment for alumni tie variables that were previously reported and explore the possibility that having

Table 6 The exclusivity of ties

	2 Numbers of actual alumni ties	3 Average tie exclusivity ratios	4 Median tie exclusivity ratios
All Universities	228	0.447	0.333
QS World rank			
Top 20	136	0.353	0.279
Top 21–50	27	0.316	0.231
Top 51–100	31	0.606	0.500
Others	34	0.781	1.000
QS US rank			
Top 20	163	0.346	0.273
Top 21–50	39	0.584	0.500
Top 51–100	10	0.658	0.583
Others	16	1.000	1.000
All Universities (MBA ties only)	91	0.425	0.333
Global MBA Ranking 2010			
Top 10 US	61	0.303	0.222
Others	30	0.672	0.500

The table shows the number of actual *alumni/MBA ties* according to the university ranking position of the endowments' underlying educational institutions, followed by average and median values of their respective scaled variables (Columns 3 and 4, respectively). The university rankings are based on QS world and QS U.S. as well as the FT Global MBA ranking for MBA ties. The *tie exclusivity ratio* is defined according to Eq. 2, where the number of alumni fund managers in actual investments is divided by the number of total alumni ties in actual and counterfactual investments within the same criteria group (according to fund strategy, vintage, and size). It can take values between 0 and 1. This scaled variable reflects the concept of exclusivity, where the higher the number the more exclusive a tie is. The *number of actual alumni/MBA ties* (Column 2) is the number of observations for these scaled values as they are only calculated for commitments with ties (values for other observations always equal zero)

Table 7 The odds of investment according to ranking and exclusivity

	Dependent variable: Investment					
	1	2	3	4	5	6
Panel A: Regular alumni ties						
Alumni tie	0.531*** (0.194)	0.584*** (0.218)				
Redundant alumni tie		-0.319 (0.274)				
Number of alumni ties			0.152 (0.143)			
MBA tie				0.687*** (0.190)		
Top 20 alumni tie					0.438* (0.253)	
Top 21-50 alumni tie					0.436*** (0.132)	
Top 51-100 alumni tie					0.422 (0.783)	
Top 100+ alumni tie					1.901*** (0.537)	
Top 10 MBA tie						0.584*** (0.162)
Top 10+ MBA tie						0.793*** (0.299)
Panel B: Scaled alumni ties (by number of counterfactual matched funds)						
Alumni tie	1.377*** (0.257)	1.373*** (0.276)				
Redundant alumni tie		0.029 (0.345)				
Number of alumni ties			1.360*** (0.253)			
MBA tie				1.350*** (0.300)		
Top 20 alumni tie					1.431*** (0.385)	
Top 21-50 alumni tie					1.100*** (0.300)	
Top 51-100 alumni tie					0.280 (1.062)	
Top 100+ alumni tie					2.331*** (0.616)	
Top 10 MBA tie						1.681*** (0.432)

Table 7 continued

	Dependent variable: Investment					
	1	2	3	4	5	6
Top 10+ MBA tie						1.192*** (0.440)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Vintage	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,641	15,641	15,641	15,641	15,641	15,641

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the regression results of Eq. 1 for various model specifications, where the binary dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual procedures, which classifies funds of similar vintages, strategy types and size (50% to 150% of invested fund) as investment alternatives to each actual investment. In Panel A, the independent dummy variable *Alumni tie*, which equals one when at least one fund manager obtained a degree in the university linked to the endowment that invested in the fund (actually or hypothetically). This variable is further broken down according to degree type (*MBA tie*), number of ties (*Redundant alumni tie*, which refers to situations where there are two or more alumni fund managers in a fund, and total *Number of alumni ties* per fund) and university ranking (as in the QS World Rankings 2010 list including U.S. institutions only, and as in the Financial Times 2010 Global MBA ranking for MBA ties). Panel B uses the scaled versions of the same variables, as stated in Eq. 2. We use the same control variables as in Eq. 1 and Table 5. Robust standard errors (in brackets) are clustered at the endowment level

more than one tie in a fund might have a greater effect than just one. Column 5 reports the results when we re-run our models based on universities' ranking positions. Panel B reports results when such variables are scaled as defined in Eq. 2. In Panel A, alumni ties connected to the top-20 universities are significant, however, the effects of ties of universities that do not make it to the top-100 list are not only statistically significant but also economically stronger. Using scaled ties, as displayed in Panel B, our results are overall consistent with our initial analysis in Panel A, with ties from top-20 universities remaining significant. More notably, alumni ties on the level of lower-ranked universities continue to appear as more economically and statistically significant. For scaled ties taking the maximum value of one, top-20 alumni ties lead to an increase in the odds of investment of 318% and that of lower-ranked institutions of 929%. The same pattern holds for MBAs as shown in Column 6. Overall, alumni networks seem to matter in general, but some of them appear to be particularly powerful and alumni ties can be even more important for lower-ranked universities. Following the specification of Eq. 2 a high value for our "scaled" alumni tie variable means that the observed tie is rather exclusive and few fund managers of the counterfactual sample share the same alma mater. With the specification of Panel B we are able to explore these situations in more detail and investigate if the overall presence of a university's alumni community in the PE industry (e.g., again measured via the counterfactual sample) impacts the odds of an alumni tie. Our results in Panel B display a positive correlation relating to the level of exclusivity. The introduction of a "scaled" alumni tie also allows us to control for the size of the underlying alumni community in the PE industry. As outlined in Table 16 of our Internet Appendix, we observe that higher ranked universities maintain a stronger footprint in the PE industry as lower ranked universities leading to lower values relating to the "scaled" alumni tie variable

(e.g., it is more likely that you find another Harvard alumni tie in our counterfactual model as compared to a lower ranked university, which in turn leads to a lower value for the “scaled” alumni tie variable). Our results show that alumni ties do matter for lower ranked universities (e.g., with a lower alumni community in the PE industry) and that the significance of alumni ties is not limited to higher ranked universities but holds also for lower ranked universities and increases with the level of exclusivity.

4.2 Performance

In a next step, we test whether investments into funds managed by alumni translates into better return performance. Thereby, we regress the PE fund performance of the endowment commitments on our main independent variable, the alumni tie, and control for a comparable set of variables used in prior analyses.¹⁸

$$\begin{aligned} Fund\ Net\ IRR_{i,j} = & a + \beta_1 Alumni_{i,j} + \beta_2 Fund\ Size_i + \beta_3 Fund\ Sequence_i \\ & + \beta_3 Same\ State_{i,j} + \beta_4 GP\ Relationship_{i,j} + \beta_5 Track\ Record_i \\ & + \beta_6 Experience_i + Fixed\ Effects + \epsilon_i. \end{aligned} \quad (3)$$

Compared to Eq. 1, we add a *Track Record*ⁱ variable to our performance regressions, which is defined as the average net IRR performance a GP has realized across all previous funds prior to the current fund generation. As our goal is to see whether investments into alumni-managed funds are beneficial or detrimental to endowments, we compare their performance to other endowment commitments to PE funds (without alumni ties). Thus, and in contrast to our odds analysis, we do not need to apply a counterfactual approach. We use ordinary least-squares (OLS) estimates including fixed effects for fund vintage years, fund strategies, and endowments. Standard errors are robust and clustered at the endowment level, similarly to previous studies on performance (e.g., Korteweg and Sorensen (2017)).

The main results of our performance regressions are shown in Table 8 for net IRR measurements, whereas TVPI results are shown in Table 18 of the Internet Appendix. We note that these measurements are popular in the literature but are not risk adjusted, which is a well-known challenge in private markets. Looking at them, we neither observe significant outperformance nor underperformance of fund commitments with alumni ties, which suggests that funds managed by alumni do not tend to perform differently than other funds in endowment portfolios. Thus, we are not able to find empirical evidence supporting our second hypothesis that alumni ties could be advantageous to endowments and translate into higher performance.

An interesting exception, however, is MBA ties. As seen in Column 2 of Table 8, they are associated with statistically significant higher performance. Further analyses, shown in Table 19 of the Internet Appendix, suggest that ties for graduates from highly ranked MBA program, which represent over 70% of ties, affect fund performance significantly. A similar pattern was also documented by Wu (2011), where the performance of non-syndicated leveraged buyout deals is shown to be higher when a team member has an MBA. The author argues that this is evidence for MBAs being better at deal screening and that, when syndication

¹⁸ We use performance figures at the fund level, but note that in some cases LPs may benefit from different fee structures and therefore they may book slightly different returns. However, performance information at the LP level is not available through the data providers used in this paper.

occurs, partnerships involving Harvard MBA social ties seem particularly fruitful. Fund managers with such a background show a strong preference to collaborate and can find a larger number of partners. This highlights the advantages of being part of the alumni network of a highly ranked university. Our findings support such an argumentation. In order to ensure that the positive relationship of MBA ties on performance is not driven by the MBA degrees themselves (see, e.g., Bertrand and Schoar 2003 and Graham and Harvey 2001), we also run regressions as in Eq. 3 with MBA experience reflected by the percentage of fund staff with MBAs as an explanatory variable. Our results, reported in Table 20 of the Internet Appendix, confirm that, although MBA experience is indeed associated with higher performance, MBA

Table 8 The performance of investments into alumni funds

	Dependent variable: Net IRR				
	1	2	3	4	5
Alumni tie	1.314 (1.819)				
MBA alumni tie		8.417*** (3.212)			
Undergraduate tie			-3.297 (2.193)		
Postgraduate tie				4.978 (3.896)	
Percentage of alumni					13.405* (7.381)
Fund size (log)	-1.304* (0.681)	-1.297* (0.662)	-1.377** (0.668)	-1.290* (0.679)	-1.223* (0.671)
Fund sequence (log)	0.600 (1.047)	0.499 (1.026)	0.590 (1.014)	0.599 (1.026)	0.497 (1.035)
Same state	0.025 (2.800)	-0.758 (2.195)	0.476 (2.866)	-0.661 (2.375)	-0.817 (2.481)
Previous GP Relationship	0.615 (1.365)	0.725 (1.368)	0.691 (1.343)	0.572 (1.357)	0.462 (1.362)
Previous GP IRR	0.175*** (0.026)	0.165*** (0.026)	0.174*** (0.026)	0.178*** (0.027)	0.174*** (0.025)
Consulting experience (%)	3.366* (1.625)	3.439** (1.570)	3.286** (1.597)	3.076* (1.759)	3.214* (1.669)
Banking experience (%)	1.373 (2.833)	1.786 (2.543)	1.302 (2.952)	1.360 (2.734)	1.469 (2.642)
Accounting experience (%)	-6.471 (4.967)	-6.695 (4.848)	-6.185 (4.987)	-6.728 (4.951)	-6.812 (4.965)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes

Table 8 continued

	Dependent variable: Net IRR				
	1	2	3	4	5
Observations	1,054	1,054	1,054	1,054	1,054
Adjusted R-squared	0.1050	0.1182	0.1058	0.1108	0.1114

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main OLS regression described in Eq. 3 and various model specifications, where the dependent variable is the *net IRR* of a fund. The independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* indicates whether an alumni tie is generated through an MBA degree (individuals with other degrees and an MBA from the same universities are also accounted as showing an MBA tie). *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for the corresponding degree levels. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs. *Same state* indicates whether fund offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with a GP. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in the respective areas. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

alumni ties are still economically and statistically significant.¹⁹ Overall, as we only observe a significant effect in the case of MBA ties, our findings suggest that general alumni ties do not prove to be a systematic factor driving the performance of endowments' PE investments.

4.3 Robustness tests

We perform a range of different robustness checks to validate our findings. First, we test whether our main finding that endowments seem more likely to invest in alumni-managed funds is not driven by the design of our counterfactual approach. In doing so, we use random draws similarly to Ishii and Xuan (2014) and propensity score matching as alternative selection methods. The results and procedure details are reported in Tables 21 and 22 of the Internet Appendix. In addition, we also use different criteria for the setup of our counterfactual approach. First, we relax size restrictions when selecting counterfactual funds, resulting in an increasing number of potential options for each actual investment. As reported in Table 23 of the Internet Appendix, this adjustment leads to similar conclusions as derived from our main analysis – alumni ties significantly increase the odds of an investment. Second, in contrast to the main analysis, we restrict our sample to investments into “local” funds only, i.e., within the same state or based within a distance of 100km to the location of the endowment fund. We still find positive, but mostly statistically insignificant, effects stemming from alumni ties, as reported in Table 24 of the Internet Appendix. Even though there is a preference for same-state investments in our data, endowments do not only consider local funds. Moreover, such ties could be particularly key for endowments that are not from the same geography due to the absence of local networks and increased information asymmetries.²⁰ We run a

¹⁹ Note that, even though we control for fund sequence, the standard errors can be biased and the statistical significance can be overestimated due to overlapping returns (see Korteweg and Sorensen (2017)). Also, the heuristic performance measures IRR and TVPI do not correctly adjust for risk (see, e.g., Korteweg and Nagel (2016)).

²⁰ If the same exercise is done only for non-local funds (only funds based farther than 100km from university/endowment cities), alumni ties are again statistically significant, as expected.

series of subsample analyses according to fund and endowment characteristics and confirm that we can draw similar conclusions for both investment odds and performance regressions as specified in the main models. Results are reported in Tables 9 and 10.

Table 9 shows that alumni ties appear to be particularly important for investments into oversubscribed funds, or for funds being raised by fund managers with a track record of high historic investment returns, which supports the hypothesis that alumni ties may facilitate access to highly demanded funds. Investments into growth funds appear to be big outliers with significantly stronger effects, but we take a cautious approach to avoid overinterpreting it since our growth fund sample is very limited (see Table 1). Our results also show that less experienced university endowments in terms of PE investments (e.g., those with less than 20 fund commitments) are more likely to rely on their alumni ties when they invest into PE funds. This is in line with our previous findings as those endowments also tend to represent lower ranked institutions. Similarly, we see that the effect on investment odds is not being driven by the most matched endowments, which again tend to also be the better ranked universities, while those appear to be the ones that show a positive impact on performance, particularly in the MBA case. This also confirms previous findings.

Another key finding, demonstrated in Table 9, is that any impact stemming from alumni ties has weakened in the more recent years as regression coefficients decrease in magnitude and are no longer statistically significant for post-2005 vintage years. This does not come as a surprise given the maturing or professionalization of the PE industry and of endowments as investors. Once endowments establish relationships with private equity firms, fund managers and other industry specialists, the importance of alumni networks for facilitated access to funds and as an information channel weakens. In our robustness checks, we see that alumni ties are particularly important for funds where previous GP Relationships do not exist and that the impact of previous firm relationships seem higher in later periods²¹. As endowments became more established in the PE industry over time, the way they approach managers or are approached by them changed. Big endowments now have specialized fund management staff that are often experts in the field of alternative investments, while many smaller endowments are managed by general university financial officers and/or often rely on recommendations given by external investment consultants. Such a higher level of professionalization may have led to an attenuated role of university-related networks over time.

In further regressions, we add an additional category of fixed effects to our main specification to control for variation at the GP level. The rationale for this is that different private equity firms may attract varying levels of endowment investors or show different fundraising strategies. We do not include these fixed effects in our main analysis as many observations would have been dropped in the logistic regressions due to a high number of GPs only being represented with one fund in our data set. This would have resulted in a subsequent selection bias as we would have run our main analysis only for large GPs. However, we still obtain similar results for the odds of investment and performance in Tables 25 and 26 of the Internet Appendix when including GP fixed effects. We also explore using interaction terms and report it in Tables 27 and 28. Table 27 further confirms the relevance of MBA ties and, not surprisingly, the effect of alumni ties differs for endowments representing universities within systems instead of single institutions. In addition to the logit regressions following the main approach of the paper, we report and refer to OLS estimates due to the problems

²¹ In a separate analysis, we also compare the presence of alumni in funds in sequences following an initial investment by an endowment. Our rationale behind is that once an endowment invests into an alumni-managed fund, follow-on funds could show an even greater number of alumni within their managers. However, we do not see any indication in the data that this holds, with the percentage of alumni fund managers remaining stable at 27% in current and follow-on funds for the average partnership.

Table 9 Investment odds subsample robustness

	Dependent variable: Investment	
	Alumni tie	MBA alumni tie
Baseline	0.531*** (0.194)	0.687*** (0.190)
Panel A: Fund characteristics		
Vintages to 2005	0.752*** (0.268)	0.902*** (0.271)
Vintages after 2005	0.195 (0.244)	0.234 (0.438)
Buyout	0.572*** (0.198)	0.584*** (0.197)
VC	− 0.166 (0.475)	0.981* (0.523)
Growth	3.881** (1.689)	6.761*** (1.373)
Undersubscribed	0.501 (0.498)	− 0.035 (0.541)
Oversubscribed	0.549*** (0.186)	0.751*** (0.205)
Top performers (IRR)	0.637*** (0.182)	0.887*** (0.199)
Low performers (IRR)	0.452 (0.294)	0.578* (0.357)
Top performers (TVPI)	0.703*** (0.148)	1.002*** (0.178)
Low performers (TVPI)	0.315 (0.344)	0.278 (0.403)
Better GP track record (IRR)	0.593*** (0.189)	0.886*** (0.246)
Worse GP track record (IRR)	0.592** (0.308)	0.404 (0.442)
First sequence	0.070 (0.639)	− 1.100 (0.800)
Second+ sequence	0.526*** (0.195)	0.705*** (0.192)
Only one endowment investor	1.137*** (0.263)	1.163*** (0.344)
More than one endowment investor	0.352* (0.211)	0.566** (0.235)
Panel B: Endowment		
Top 20	0.485* (0.262)	0.494*** (0.128)
Top 50	0.451** (0.198)	0.682*** (0.200)
Top 100	0.428** (0.192)	0.652*** (0.195)
Other endowments (Top 100+)	2.049*** (0.604)	1.532 (1.289)
Top performers (IRR)	0.437* (0.258)	0.763*** (0.246)
Bottom performers (IRR)	0.665** (0.276)	0.581* (0.332)
Endowments with more PE commitments	0.329 (0.216)	0.620*** (0.238)
Endowments with less PE commitments	1.154*** (0.264)	1.082*** (0.196)
Previous GP Relationship	0.443 (0.445)	1.387* (0.838)
No previous GP Relationship	0.520** (0.231)	0.611*** (0.194)
Largest 10 endowments	0.806*** (0.281)	0.880*** (0.002)
Largest 20 endowments	0.551** (0.231)	0.582** (0.240)
Other endowments	0.496 (0.375)	0.855*** (0.403)
Public universities	0.508 (0.347)	0.889*** (0.343)
Private universities	0.566*** (0.213)	0.610*** (0.192)
Top 10 most matched universities	0.259 (0.316)	0.509*** (0.139)
Remaining less matched universities	0.809*** (0.175)	1.319*** (0.375)
Control variables	Yes	Yes
F.E. Vintage	Yes	Yes

Table 9 continued

	Dependent variable: Investment	
	Alumni tie	MBA alumni tie
Baseline	0.531*** (0.194)	0.687*** (0.190)
F.E. Type	Yes	Yes
F.E. Endowment	Yes	Yes

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table reports the main results of the regression model described in Eq. 1 using subsamples for the purpose of checking for the robustness of results. Each line refers to a difference subsample and only results for the main independent variables, *Alumni tie* and *MBA tie*, are reported. Chosen subsamples on the fund level are based on sample periods (before and after 2005), fund type, fund subscription status, relative fund performance (below and above median), relative GP performance (below and above median), fund sequence, and number of investors. On the investor side, subsamples are based on university ranking, relative performance (below and above median), number of commitments (below and above median), endowment size, university classification (public or private), and level of representativeness in the fund manager sample. We apply the same controls and fixed effects as in Table 5. Robust standard errors (in brackets) are clustered at the endowment level

Table 10 Performance subsample robustness

	Dependent variable: Net IRR	
	Alumni tie	MBA alumni tie
Baseline	1.314 (1.819)	8.417*** (3.212)
Panel A: Fund characteristics		
Vintages to 2005	1.331 (2.161)	6.027* (3.497)
Vintages after 2005	0.963 (2.106)	13.736 (7.372)
Buyout	2.259 (2.273)	11.117*** (3.639)
VC	4.896 (4.3664)	4.805* (2.551)
Undersubscribed	3.129 (3.109)	1.959 (12.864)
Oversubscribed	1.311 (2.143)	9.094*** (3.654)
Top performers (IRR)	1.141 (1.740)	7.599 (4.695)
Low performers (IRR)	− 0.588 (1.291)	3.831*** (1.120)
Top performers (TVPI)	1.618** (0.798)	7.695*** (2.899)
Low performers (TVPI)	0.047 (1.932)	4.505*** (1.726)
Better GP track record (IRR)	− 0.220 (0.961)	0.662 (1.417)
Worse GP track record (IRR)	3.085 (2.184)	10.234* (5.875)
Only one endowment investor	0.430 (8.379)	− 0.696 (8.195)
More than one endowment investor	0.277 (1.900)	5.724* (3.248)
Panel B: Endowment		
Top 20	1.840 (2.425)	9.829*** (2.207)
Top 50	1.736 (1.944)	7.929** (3.130)
Top 100	1.441 (1.810)	8.006** (3.012)
Other endowments (Top 100+)	3.330 (6.520)	32.459*** (6.132)
Top performers (IRR)	2.008 (2.578)	10.066** (3.859)
Bottom performers (IRR)	− 0.713 (1.696)	3.174 (2.239)
Endowments with more PE commitments	1.611 (2.136)	8.202* (4.055)
Endowments with less PE commitments	1.428 (1.687)	7.811** (3.262)
Previous GP Relationship	− 0.502 (1.820)	8.158 (7.608)

Table 10 continued

	Dependent variable: Net IRR	
	Alumni tie	MBA alumni tie
Baseline	1.314 (1.819)	8.417*** (3.212)
No previous GP Relationship	3.268 (3.019)	7.518* (4.235)
Largest 10 endowments	0.485 (2910)	4.437 (5.266)
Largest 20 endowments	0.660 (2.138)	4.155 (3.368)
Other endowments	2.392* (1.237)	14.870*** (2.478)
Public universities	− 1.537 (1.430)	9.362 (6.275)
Private universities	2.952 (2.070)	6.832** (2.637)
Top 10 most matched universities	5.762* (2.418)	10.882*** (2.166)
Remaining less matched universities	− 2.051 (1.767)	0.615 (5.111)
Control variables	Yes	Yes
F.E. Vintage	Yes	Yes
F.E. Type	Yes	Yes
F.E. Endowment	Yes	Yes

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table shows the results of the OLS regression model described in Eq. 3, using different subsamples for the purpose of checking for the robustness of results. Construction of subsamples follows the definitions as outline in Table 9. Each line refers to a different subsample and only results for the main independent variables, *Alumni tie* and *MBA tie*, are reported. We apply the same controls and fixed effects as in Table 8. Robust standard errors (in brackets) are clustered at the endowment level

that arise when using interaction terms in non-linear models (see Ai and Norton (2003)). Table 28 reports the results for performance regressions with interaction terms, where we again see that MBA ties are related to better performing investments, although we do not see any statistically significant interaction for university and endowment characteristics. We do see, however, that the MBA alumni effect itself remains strong and that a better ranking and more experience are linked to lower performance. Our results on the impact of MBA alumni ties remain robust when we also control for outliers by winsorizing performance as reported in Table 29.

Since our access to the fund managers' biographies is restricted to GPs that manage at least one buyout fund, we note that a key limitation of our study is that our data sample does not capture investments into fund managers who focus exclusively on VC investments. While access to top-performing VC funds can be particularly difficult (compared to larger buyout funds), they are seen as a key driver of the endowments' investment success (e.g., Sensoy et al. (2014)). We can therefore expect the results that we derive to be even more pronounced for managers who exclusively follow a VC investment strategy. Thus, our observed estimates may underestimate the effect of alumni ties. However, the fact that we still find significant results, i.e. funds managed by alumni are preferred, is a strong indicator that this effect is non-trivial and must hold for the PE industry as a whole.

Finally, we understand that what we refer to as "alumni ties" is a broad term to classify the connections with individuals that had some sort of experience in or exposure to an institution. We are able to differentiate between types and intensity of these social ties by means of degree

types (such as undergraduate or MBA degrees), how extensive or tight an alumni community is, or through university rankings. This allows us to account for different levels of involvement and potential influence of alumni ties and their effect on investment decisions.

5 Conclusion

In this paper, we argue that alumni ties play an important role in the process of selecting investment opportunities. On the one hand, they can serve as a channel of access for investors in a competitive market for promising investments. On the other hand, they can help to reduce information asymmetries in a highly opaque asset class. Based on a unique dataset consisting of information about U.S. university endowments, its commitments into PE funds, and fund managers' biographies, we address the research question of whether university endowments are more likely invested in funds managed by their own alumni and whether such alumni ties pay off in terms of superior performance.

Our empirical results confirm a higher incidence of alumni ties in PE fund commitments made by university endowments. The strongest evidence is found for endowments from lower ranked universities and for less experienced endowments, highlighting that the relevance of such ties is not restricted to a certain segment of prestigious universities but applicable to a broad range of university endowments. This main finding, combined with the results in our robustness section, can be seen as an indication that universities benefit from facilitated access to funds managed by their own alumni.

We do not find strong and statistically significant evidence that endowment commitments to funds managed by alumni outperform other endowments' PE investments overall. We demonstrate that this is the case for investments into funds managed by MBA graduates specifically. We highlight, however, that the fact that we do not find any signs of underperformance is noteworthy. On the one hand, some of the benefits associated with investments within social networks such as lower search and due diligence costs are not reflected in fund performance data. On the other hand, the quality of decisions in a highly professionalized sector like PE is less likely affected by social connections, even if such circles facilitate investments.

Appendix

Table 11 Board of trustees' backgrounds and alumni matches

University	N of Trustees	Alumni %	Finance Background	PE Background	% of Alumni-Matched Funds
Harvard University	32	97%	22%	16%	77%
University of Michigan	8	88%	13%	13%	31%
University of California	14	57%	7%	7%	18%

Table 11 continued

University	N of Trustees	Alumni %	Finance Background	PE Background	% of Alumni-Matched Funds
Stanford University	34	94%	35%	32%	79%
University of Texas	10	100%	60%	30%	14%
Yale University	17	94%	29%	29%	25%
University of Washington	10	90%	20%	20%	15%
University of Chicago	49	98%	39%	39%	16%
Princeton University	37	100%	32%	32%	22%
University of Virginia	19	79%	16%	16%	23%
Correlation between alumni % and alumni-matched funds					0.2173
Correlation between PE background of alumni and alumni-matched funds					−0.0238

The table below shows the number of trustees in universities' trustee boards and the percentage of those that are alumni and have Finance and PE backgrounds. This information was hand collected from university websites and often supplemented via internet searches for individual biographies. In addition, the last column includes the percentage of alumni-managed funds those universities invested in according to the data used in the paper. The last two rows of the table show the correlation between the occurrence of those investments and the analyzed characteristics

Table 12 Data sources

	Number of PE firms	Number of funds	Number of endowments	Number of commitments
PitchBook	295	613	93	634
Preqin	286	584	182	1,050
Dow Jones	215	361	99	521
FactSet	218	443	100	322
Overall	295	613	189	1,590

The table shows the number of observations in the main investment sample (consisting of endowment commitments into PE funds with fund manager data available) obtained from each data provider used in this study. The overall number of PE firms (funds/endowments/commitments) refers to number of unique GPs (funds/endowments/commitments) in our data sample.

Table 13 Breakdown of Buyout and Venture Capital Investments by Universities

University	All Commitments			Commitments with Fund Staff Data			Average VC IRR (%)	Average Buyout IRR (%)	Average Fund Size (US\$ million)	Average VC IRR (%)	Average Buyout IRR (%)	Average Fund Size (US\$ million)
	Buyout Commitments	VC Commitments	Average Fund Size (US\$ million)	Buyout Commitments	VC Commitments	Average Fund Size (US\$ million)						
Harvard University	62	87	844	47	6	1503	23.74	15.60	47	15.61	-0.50	1503
University of Michigan	115	144	1549	80	26	2483	35.31	12.78	80	13.68	19.66	2483
University of California	126	120	1534	99	16	2715	21.62	15.17	99	15.95	9.81	2715
Stanford University	16	49	559	15	4	1009	41.59	23.91	15	19.22	-1.28	1009
University of Texas	109	101	1245	78	22	2273	8.85	11.64	78	12.09	7.15	2273
Yale University	42	63	673	34	6	1180	30.09	22.68	34	18.61	-2.66	1180
University of Washington	49	70	1412	42	17	2180	13.64	14.14	42	13.45	16.97	2180
University of Chicago	47	55	832	40	7	1310	24.71	9.15	40	10.19	18.23	1310
Princeton University	32	31	758	31	1	1140	41.23	14.86	31	14.46	-	1140
University of Virginia	24	25	1028	24	5	1436	27.35	14.07	24	14.07	22.70	1436
Cornell University	32	53	1970	31	9	3668	11.06	11.24	31	11.24	8.22	3668
Amherst College	14	17	2602	13	-	5599	38.77	12.73	13	12.73	-	5599
MIT	36	50	691	33	7	1143	33.34	18.27	33	15.87	1.74	1143
University of Pennsylvania	7	4	1378	7	-	1914	6.83	19.63	7	19.63	-	1914
University of Notre Dame	21	49	650	18	6	1328	40.38	24.97	18	22.02	18.38	1328
Northwestern University	20	29	917	17	5	1320	2.82	12.81	17	14.58	7.08	1320
Duke University	20	19	467	17	3	650	36.60	10.04	17	9.98	9.00	650
Pennsylvania State University	14	26	1167	14	4	1983	15.38	20.05	14	20.05	13.36	1983
Columbia University	10	10	1888	9	2	2807	-11.60	16.78	9	16.78	-0.26	2807
Dartmouth College	13	20	751	10	-	1008	45.35	14.99	10	16.05	-	1008
Colgate University	5	3	1827	5	1	2161	3.20	16.72	5	16.72	1.30	2161
University of Puget Sound	5	-	1727	3	-	2281	-	15.50	3	9.50	-	2281
Purdue University	16	16	2781	16	4	4108	7.86	12.48	16	12.48	13.13	4108

Table 13 continued

University	All Commitments			Commitments with Fund Staff Data						
	Buyout Commitments	VC Commitments	Average Fund Size (US\$ million)	Average Buyout IRR (%)	Average VC IRR (%)	Buyout Commitments	VC Commitments	Average Fund Size (US\$ million)	Average Buyout IRR (%)	Average VC IRR (%)
UC, Berkeley	8	20	2673	6.56	11.81	7	5	5945	11.10	11.88
University of Missouri	15	6	957	14.71	13.40	11	-	1500	13.50	-
University of Rochester	2	3	1040	8.70	-	2	2	1201	8.70	-
University of Nebraska	3	1	3599	17.25	-	3	-	4837	17.25	-
University of Wisconsin	12	8	1175	17.42	6.87	9	2	1792	17.66	0.35
Denison University	9	11	1287	14.00	-5.10	7	3	2115	19.88	-4.90
Colby College	9	6	2441	17.80	-3.75	8	1	3125	17.80	17.00
Ohio State University	6	9	2348	18.78	-1.24	6	3	3868	18.78	2.25
University of North Carolina	7	12	543	6.90	-1.58	7	2	770	6.90	-4.90
Michigan State University	8	10	978	20.34	22.83	7	1	1411	20.37	-
Johns Hopkins University	5	8	905	26.78	0.94	5	-	1698	26.78	-
University of Utah	3	4	910	14.70	0.90	3	2	1269	14.70	0.90
Brown University	2	8	1235	13.75	21.30	2	1	825	13.75	27.80
Claremont McKenna College	5	4	570	14.70	8.00	3	-	792	14.70	-
Babson College	3	-	3033	14.57	-	3	-	3033	14.57	-
Middlebury College	1	-	1850	0.20	-	1	-	1850	0.20	-
Wheaton College (Illinois)	1	-	60	-	-	1	-	60	-	-
St. Lawrence University	1	-	60	-	-	1	-	60	-	-
St John's University	-	3	382	-	26.20	-	1	464	-	26.20
Others	587	604	1628	14.30	14.93	479	102	2556	14.36	13.81
Total	1522	1768	1383	14.45	20.07	1248	268	2292	14.49	11.93

The table reports the number of endowment private equity commitments into buyout and venture capital (VC) strategy types, for all known commitments and the main investment sample. It also shows overall average fund sizes. Only endowments with matched alumni funds are listed, as in Table 3

Table 14 Popular funds among endowments

Fund Name	Type	Vintage Year	Fund State	Size (US\$ million)	Sequence	Net IRR	TVPI	Number of Fund Managers	Endowment Investors	Endowments with Alumni Fund Manager(s)
1 Madison Dearborn Capital Partners IV	Buyout	2000	Illinois	4036	4	14.1	1.92	10	30	6
2 TA IX	Buyout	2000	Massachusetts	2000	9	21.9	2.42	12	27	3
3 Denham Commodity Partners Fund VI	Buyout	2012	Massachusetts	3050	6	8.7	1.2	10	24	1
4 Thomas H. Lee Equity Partners V	Buyout	2000	Massachusetts	6114	5	13.7	1.68	7	21	2
5 Madison Dearborn Capital Partners III	Buyout	1999	Illinois	2200	3	8.6	1.52	3	19	0
6 TA XI	Buyout	2010	Massachusetts	4000	11	21.1	2.16	22	18	5
7 Madison Dearborn Capital Partners II	Buyout	1997	Illinois	925	2	22	2.33	3	16	1
8 Madison Dearborn Capital Partners V	Buyout	2006	Illinois	6515	5	7.1	1.61	9	16	2
9 Berkshire Fund VI	Buyout	2002	Massachusetts	1700	6	25	3.01	9	15	7
10 Denham Commodity Partners Fund V	Buyout	2008	Massachusetts	2022	5	-16.6	0.55	9	14	1
11 Thomas H. Lee Equity Partners IV	Buyout	1998	Massachusetts	3350	4	-2.6	0.87	1	14	0
12 Madison Dearborn Capital Partners VI	Buyout	2008	Illinois	4057	6	23	1.94	10	13	4
13 Morgenthaler Venture Partners VI	VC	2000	California	575	6	-10.8	0.57	6	13	1
14 Berkshire Fund VII	Buyout	2006	Massachusetts	3135	7	16.8	2.02	9	11	1
15 Blackstone Capital Partners IV	Buyout	2003	New York	6450	4	37	2.37	13	11	1

Table 14 continued

Fund Name	Type	Vintage Year	Fund State	Size (US\$ million)	Sequence	Net IRR	TVPI	Number of Fund Managers	Endowment Investors	Endowments with Alumni Fund Manager(s)
16 Blackstone Capital Partners V	Buyout	2006	New York	20365	5	8.8	1.66	19	11	0
17 Sentinel Capital Partners V	Buyout	2014	New York	1300	5	12.6	1.24	8	11	0
18 Charlesbank Equity Fund VII	Buyout	2009	Massachusetts	1500	7	23	2.21	7	10	2
19 TPG Partners VI	Buyout	2008	Texas	18873	6	-	1.54	13	10	2
20 Bain Capital Fund IX	Buyout	2006	Massachusetts	8000	9	6.55	1.62	8	9	2
21 Bain Capital Fund X	Buyout	2008	Massachusetts	10707	10	9.8	1.63	12	9	0
22 Berkshire Fund VIII	Buyout	2011	Massachusetts	4549	8	9	1.31	13	9	3
23 TA Advent VIII	Buyout	1997	Massachusetts	800	8	23.3	2.28	10	9	1
24 Frontenac VII	Buyout	1997	Illinois	300	7	12.2	1.4	3	8	1
25 Great Hill Equity Partners IV	Buyout	2008	Massachusetts	1133	4	25.6	2.45	8	8	0
26 H.I.G. Bayside Debt & LBO Fund II	Buyout	2008	Florida	3000	2	12.5	1.53	3	8	1
27 Parthenon Investors II	Buyout	2001	Massachusetts	750	2	12.4	1.63	4	8	2
28 Providence Equity Partners IV	Buyout	2001	Rhode Island	2764	4	23.6	2.39	5	8	1
29 Sentinel Capital Partners IV	Buyout	2009	New York	765	4	37	2.48	7	8	0
30 Silver Lake Partners IV	Buyout	2013	California	10300	4	-	1.46	12	8	2
Total matches:								52		

The table shows the top 30 PE funds that attracted the highest number of individual endowment investors. It displays their main characteristics, such as fund type, vintage year, home state, size and performance metrics, according to numbers of commitments by individual university endowments. It also includes the number of fund managers each fund has according to our fund staff data and the number of university endowments that have at least one alumna/us working for the fund

Table 15 Characteristics of funds in actual and counterfactual investment samples

		All	Buyout	Growth	VC
Invested funds	N	590	460	23	107
	Mean size (USD million)	1546	1831	690	503
	Mean net IRR (%)	13.72	14.27	11.53	11.78
	Mean TVPI (x)	1.71	1.71	1.68	1.72
Funds in counterfactual sample	N	1507	1240	50	217
	Mean size (USD million)	905	1024	418	342
	Mean net IRR (%)	12.80	13.87	14.26	6.43
	Mean TVPI (x)	1.66	1.70	1.77	1.43
Funds only in counterfactual sample	N	960	791	43	126
	Mean size (USD million)	543	590	457	279
	Mean net IRR (%)	11.97	13.54	13.56	0.22
	Mean TVPI (x)	1.63	1.68	1.75	1.18

The table describes the main characteristics (number of observations, size, and performance, broken down by strategy types) of the funds included in the actual and counterfactual endowment commitment samples. Moreover, the counterfactual fund sample is divided into a sample that includes funds that have at least one endowment commitment in the actual commitment sample and a sample with completely newly added/non-overlapping funds

Table 16 Distribution of university degrees among fund managers

1	2	3 # of Alumni Managers	4 %	5 # of MBA Alumni Managers	6 %
Panel A: Educational credentials of fund managers of investment sample funds					
1	Harvard University	575	25.3	438	33.8
2	University of Pennsylvania	303	13.3	147	11.4
3	Stanford University	257	11.3	129	10.0
4	Dartmouth College	115	5.1	41	3.2
5	Columbia University	111	4.9	70	5.4
6	Northwestern University	106	4.7	74	5.7
7	University of California	95	4.2	23	1.8
8	Yale University	88	3.9	10	0.8
9	University of Chicago	86	3.8	80	6.2
10	Princeton University	81	3.6	0	0.0
11	University of Michigan	72	3.2	16	1.2
12	Duke University	62	2.7	5	0.4
13	University of Virginia	61	2.7	8	0.6
14	Cornell University	52	2.3	8	0.6
15	University of Texas	50	2.2	7	0.5

Table 16 continued

1	2	3 # of Alumni Managers	4 %	5 # of MBA Alumni Managers	6 %
16	University of Notre Dame	49	2.2	4	0.3
17	Massachusetts Institute of Technology	47	2.1	14	1.1
18	Claremont McKenna College	43	1.9	0	0.0
19	New York University	41	1.8	21	1.6
20	Amherst College	21	0.9	0	0.0
Total number of managers with educational credentials		2,272	0.0	1,295	0.0
Panel B: Educational credentials of added fund managers of counterfactual sample funds					
1	Harvard University	366	18.3	262	23.2
2	University of Pennsylvania	259	13.0	142	12.6
3	Stanford University	135	6.8	65	5.8
4	Northwestern University	117	5.9	84	7.4
5	Columbia University	110	5.5	86	7.6
6	University of California	108	5.4	28	2.5
7	University of Chicago	92	4.6	84	7.4
8	University of Virginia	79	4.0	24	2.1
9	Princeton University	68	3.4	1	0.1
10	Dartmouth College	67	3.4	29	2.6
11	Duke University	64	3.2	23	2.0
12	Yale University	60	3.0	9	0.8
13	University of Michigan	58	2.9	18	1.6
14	Cornell University	54	2.7	13	1.2
15	University of Texas	51	2.6	16	1.4
16	New York University	46	2.3	30	2.7
17	Massachusetts Institute of Technology	37	1.9	6	0.5
18	University of Notre Dame	33	1.7	2	0.2
19	Pennsylvania State University	21	1.1	0	0.0
20	Claremont McKenna College	20	1.0	0	0.0
Total number of managers with educational credentials		1,995	0.0	1,130	0.0

The table shows the number of individuals with at least one degree from the 20 most frequently seen U.S. universities in the biographies of fund managers, as well as the percentage they represent out of the total number of fund managers with listed degrees. Only universities that are listed as endowment investors in our dataset are ranked. Panel A focuses on the main endowment investment sample as outline in Table 3, which is comprised of 2,272 fund managers with known educational backgrounds. Of those, 1,295 have an MBA degree, which are also counted and shown in column 5. Panel B shows the same ranking for the additional managers that are considered through the counterfactual analysis. It is therefore complementary to the sample used for Panel A

Table 17 The odds of investment with previous general partner (GP) performance

	Dependent variable: Investment				
	1	2	3	4	5
Alumni tie	0.521** (0.223)				
MBA alumni tie		0.705*** (0.187)			
Undergraduate tie			0.487** (0.242)		
Postgraduate tie				0.595*** (0.225)	
Percentage of alumni					0.491 (0.514)
Fund size (log)	0.661*** (0.049)	0.666*** (0.049)	0.666*** (0.048)	0.665*** (0.048)	0.669*** (0.049)
Fund sequence (log)	0.054 (0.077)	0.053 (0.076)	0.060 (0.078)	0.052 (0.076)	0.054 (0.078)
Same state	0.314 (0.197)	0.330* (0.194)	0.389** (0.190)	0.341* (0.198)	0.367* (0.200)
Previous GP Relationship	4.026*** (0.190)	4.050*** (0.192)	4.032*** (0.187)	4.034*** (0.192)	4.030*** (0.189)
Previous GP IRR	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)
Consulting experience (%)	0.255 (0.167)	0.259 (0.167)	0.258 (0.167)	0.259 (0.167)	0.254 (0.167)
Banking experience (%)	-0.774*** (0.155)	-0.770*** (0.154)	-0.783*** (0.153)	-0.775*** (0.153)	-0.776*** (0.153)
Accounting experience (%)	-1.039** (0.488)	-1.038** (0.484)	-1.049** (0.491)	-1.034** (0.484)	-1.029** (0.484)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes

Table 17 continued

	Dependent variable: Investment				
	1	2	3	4	5
Observations	9,337	9,337	9,337	9,337	9,337
Pseudo R-squared	0.3461	0.3456	0.3449	0.3454	0.3445

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main regression described in Eq. 1 and various model specifications, where the binary dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual procedures, which classifies funds of similar vintages, strategy types and size (50% to 150% of invested fund) as investment alternatives to each actual investment. Each column uses a slightly different variation of the main independent dummy variable *Alumni tie*, which equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* shows whether an alumni tie is (also) generated through an MBA degree. *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for such degree levels. *Percentage of alumni* is the proportion of a fund's managers that attended the same university. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs, respectively. *Same state* indicates whether fund offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with the GP that manages the chosen fund. *Previous GP IRR* is the average net IRR for previous funds managed by the same GP. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in these respective areas. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 18 The TVPI performance of investments into alumni funds

	Dependent variable: TVPI				
	1	2	3	4	5
Alumni tie	0.068 (0.081)				
MBA alumni tie		0.344*** (0.132)			
Undergraduate tie			-0.091 (0.136)		
Postgraduate tie				0.190 (0.149)	
Percentage of alumni					0.482 (0.293)
Fund size (log)	-0.057** (0.024)	-0.058** (0.024)	-0.059** (0.023)	-0.057** (0.025)	-0.054** (0.025)
Fund sequence (log)	0.049 (0.054)	0.045 (0.054)	0.048 (0.052)	0.048 (0.053)	0.046 (0.054)
Same state	-0.099 (0.091)	-0.126 (0.073)	-0.077 (0.092)	-0.120 (0.084)	-0.123 (0.092)

Table 18 continued

	Dependent variable: TVPI				
	1	2	3	4	5
Previous GP Relationship	0.010 (0.058)	0.016 (0.056)	0.013 (0.056)	0.010 (0.058)	0.005 (0.058)
Previous GP IRR	0.185*** (0.034)	0.182*** (0.033)	0.186*** (0.034)	0.189*** (0.035)	0.185*** (0.034)
Consulting experience (%)	0.182*** (0.067)	0.186*** (0.064)	0.179*** (0.065)	0.171** (0.070)	0.175*** (0.068)
Banking experience (%)	0.165 (0.131)	0.179 (0.126)	0.158 (0.135)	0.162 (0.129)	0.166 (0.127)
Accounting experience (%)	-0.365 (0.271)	-0.373 (0.269)	-0.353 (0.271)	-0.373 (0.268)	-0.377 (0.271)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes
Observations	1,058	1,058	1,058	1,058	1,058
Adjusted R-squared	0.1260	0.1355	0.1256	0.1293	0.1289

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the OLS results of the main regression described in Eq. 3 and various model specifications, but where the dependent variable is the TVPI of a fund. The independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* indicates whether an alumni tie is (also) generated through an MBA degree. *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for such degree levels. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs, respectively. *Same state* indicates whether fund offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with a GP. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in the respective areas. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 19 Performance by ranking

Panel A:	Dependent variable: Net IRR			
	1	2	3	4
Alumni tie	1.314 (1.819)			
Top 20 alumni tie		1.628 (2.67)		
Top 21-50 alumni tie		1.203 (2.512)		
Top 51-100 alumni tie		-0.197 (3.59)		

Table 19 continued

Panel A:	Dependent variable: Net IRR			
	1	2	3	4
Top 100+ alumni tie		-1.224 (3.631)		
MBA alumni tie			8.417*** (3.212)	
Top 10 MBA				6.556** (2.774)
Other MBA				10.377* (5.814)
vskip6pt Panel B:	Dependent variable: TVPI			
	1	2	3	4
Alumni tie	0.068 (0.081)			
Top 20 alumni tie		0.030 (0.106)		
Top 21-50 alumni tie		0.152 (0.173)		
Top 51-100 alumni tie		0.200*** (0.72)		
Top 100+ alumni tie		0.061 (0.150)		
MBA alumni tie			0.344*** (0.132)	
Top 10 MBA				0.290*** (0.090)
Other MBA				0.399 (0.255)
Control variables	Yes	Yes	Yes	Yes
F.E. Vintage	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the OLS results of the performance regression described in Eq. 3 and various model specifications, with the dependent variable being *Net IRR* and *TVPI* in Panels A and B, respectively. We split the alumni ties according to ranking and MBA degrees. Controls and fixed effects are the same as described in Eq. 3 and reported in Tables 8 and 17. Robust standard errors (in brackets) are clustered at the endowment level

Table 20 The performance of investments into alumni funds accounting for MBAs

	Dependent variable: Net IRR				
	1	2	3	4	5
Alumni tie	0.594 (1.686)				
MBA alumni tie		7.330** (3.308)			
Undergraduate tie			-3.555 (2.153)		
Postgraduate tie				4.092 (3.069)	
Percentage of alumni					9.831 (8.227)
Fund size (log)	-1.306** (0.661)	-1.293** (0.652)	-1.373** (0.651)	-1.288* (0.663)	-1.242* (0.650)
Fund sequence (log)	0.961 (0.985)	0.846 (0.988)	0.959 (0.950)	0.946 (0.982)	0.861 (0.989)
Same state	0.513 (2.593)	-0.335 (2.030)	0.792 (2.678)	-0.190 (2.178)	-0.221 (2.258)
Previous GP Relationship	0.868 (1.355)	0.926 (1.362)	0.923 (1.337)	0.805 (1.350)	0.726 (1.348)
Previous GP IRR	0.166*** (0.024)	0.158*** (0.024)	0.165*** (0.025)	0.169*** (0.026)	0.166*** (0.026)
MBA experience	9.147*** (2.889)	8.437*** (3.096)	9.316*** (2.765)	8.764*** (3.069)	8.520*** (3.250)
Consulting experience (%)	2.270 (1.430)	2.420* (1.428)	2.164 (1.433)	2.079 (1.532)	2.238 (1.459)
Banking experience (%)	1.645 (2.806)	2.028 (2.538)	1.649 (2.882)	1.664 (2.720)	1.726 (2.658)
Accounting experience (%)	-7.269 (5.070)	-7.429 (5.025)	-7.015 (5.089)	-7.468 (5.050)	-7.479 (5.056)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes

Table 20 continued

	Dependent variable: Net IRR				
	1	2	3	4	5
Observations	1,054	1,054	1,054	1,058	1,058
Adjusted R-squared	0.1240	0.1343	0.1257	0.1282	0.1276

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the OLS results of the main regression and variants described in Eq. 3, plus an MBA experience independent variable to account for fund managers' MBA educational background (independent of an MBA alumni tie). The dependent variable is the net IRR of a fund. The independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree in the university linked to the endowment which invested in the fund (actually or hypothetically). *MBA alumni tie* indicates whether an alumni tie is (also) generated through an MBA degree. *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for both degree levels. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs. *Same state* indicates whether fund offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with a GP. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in the respective areas. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 21 Random investment sample draws

	Mean (%)	Difference from investment sample
Proportion of investments into alumni funds	14.94	
Average proportion of investments into alumni funds with random fund selection	9.03	***
Average proportion of investments into alumni funds with random endowment selection	11.21	***
Average proportion of investments into alumni funds with random fund and endowment selection	7.46	***
Proportion of investments into MBA alumni funds	5.96	
Average proportion of investments into MBA alumni funds with random fund selection	3.98	***
Average proportion of investments into MBA alumni funds with random endowment selection	4.63	***
Average proportion of investments into MBA alumni funds with random fund and endowment selection	3.21	***

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table compares the proportion of general and MBA alumni ties in the actual investment sample compared to that seen in different types of random samples. For each sample type, we run random selection procedures one hundred times and report the average values. We confirm that the means of the random samples significantly differ from the investment sample based on *t*-tests

Table 22 Propensity score matching

	Alumni tie	MBA tie
Nearest neighbour	0.030* (0.016)	0.033 (0.024)
Nearest three neighbours	0.030** (0.014)	0.032 (0.019)
Gaussian Kernel	0.041*** (0.011)	0.042** (0.018)

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table lists the average treatment effects on the treated (ATT) for matched observations using a logit propensity score method where the treatment effect is the presence of an *Alumni tie* or *MBA tie*. We run three different variations of the model. We match observations with the first or third nearest neighbours according to propensity scores, and also use a Gaussian kernel

Table 23 The odds of investment with expanded counterfactual sample

	Dependent variable: Investment		
	1	2	3
Alumni tie	0.634*** (0.166)		
MBA alumni tie		0.579*** (0.231)	
Percentage of alumni			1.436*** (0.307)
Control Variables	Yes	Yes	Yes
F.E. Vintage	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes
Observations	50,915	50,915	50,915
Pseudo R-squared	0.3555	0.3541	0.3549

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main regression described in Eq. 1 and various model specifications, where the binary dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual procedures, which classifies funds of similar vintages and strategy types as investment alternatives to each actual investment (it does not consider fund size, as in prior regressions). Each column uses a slightly different variation of the main independent dummy variable *Alumni tie*, which equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* shows whether an alumni tie is (also) generated through an MBA degree. *Percentage of alumni* is the proportion of a fund's staff that attended the same university. Control variables include *Fund size*, *Fund sequence*, *Same state*, *Previous GP Relationship*, *Consulting experience*, *Banking experience* and *Accounting experience*. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 24 The odds of investment with a local investment sample

	Dependent variable: Investment		
	1	2	3
Alumni tie	0.639 (0.296)		
MBA alumni tie		0.561 (0.416)	
Percentage of alumni			0.163** (0.070)
Control Variables	Yes	Yes	Yes
F.E. Vintage	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes
Observations	957	957	957
Pseudo R-squared	0.2476	0.2488	0.2489

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main regression described in Eq. 1 and various model specifications, where the binary dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual procedures, which classifies funds of similar vintages and strategy types as investment alternatives to each actual investment (it does not consider fund size, as in prior regressions). Each column uses a slightly different variation of the main independent dummy variable *Alumni tie*, which equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* shows whether an alumni tie is (also) generated through an MBA degree. *Percentage of alumni* is the proportion of a fund's staff that attended the same university. Control variables include *Fund size*, *Fund sequence*, *Same state*, *Previous GP Relationship*, *Consulting experience*, *Banking experience* and *Accounting experience*. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 25 The odds of investment with GP fixed effects

	Dependent variable: Investment				
	1	2	3	4	5
Alumni tie	0.411* (0.222)				
MBA alumni tie		0.521** (0.231)			
Undergraduate tie			0.451* (0.233)		
Postgraduate tie				0.623** (0.277)	
Percentage of alumni					0.852* (0.450)

Table 25 continued

	Dependent variable: Investment				
	1	2	3	4	5
Fund size (log)	1.460*** (0.136)	1.459*** (0.135)	1.63*** (0.136)	1.463*** (0.135)	1.473*** (0.136)
Fund sequence (log)	-0.206*** (0.064)	-0.206*** (0.062)	-0.202*** (0.063)	-0.209*** (0.062)	-0.206*** (0.064)
Same state	0.593*** (0.184)	0.615*** (0.182)	0.656*** (0.173)	0.607*** (0.181)	0.609*** (0.181)
Previous GP Relationship	4.165*** (0.223)	4.177*** (0.227)	4.170*** (0.222)	4.169*** (0.228)	4.169*** (0.226)
Consulting experience (%)	0.415 (0.434)	-0.176 (0.436)	-0.183 (0.435)	-0.170 (0.436)	-0.161 (0.430)
Banking experience (%)	-0.289 (0.245)	-0.286 (0.243)	-0.295 (0.244)	-0.283 (0.243)	-0.286 (0.245)
Accounting experience (%)	0.955* (0.497)	0.939* (0.494)	0.949 (0.496)	0.948* (0.497)	0.962* (0.494)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes
F.E. General Partner	Yes	Yes	Yes	Yes	Yes
Observations	9,730	9,730	9,730	9,730	9,730
Pseudo R-squared	0.3780	0.3776	0.3774	0.3781	0.3775

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main regression described in Eq. 1 and various model specifications, where the binary dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual procedures, which classifies funds of similar vintages, strategy types and size (50% to 150% of invested fund) as investment alternatives to each actual investment. Each column uses a slightly different variation of the main independent dummy variable *Alumni tie*, which equals one when at least one senior staff working at a fund obtained a degree in the university linked to the endowment which invested in the fund (actually or hypothetically). *MBA alumni tie* shows whether an alumni tie is (also) generated through an MBA degree. *Undergraduate* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for both degree levels. *Percentage of alumni* is the proportion of a fund's staff that attended the same university. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs, respectively. *Same state* indicates whether those offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with a GP. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in the respective areas. We apply fixed effects to vintage year, fund strategy, endowment and GP. Robust standard errors (in brackets) are clustered at the endowment level

Table 26 The performance of investments into alumni funds with GP fixed effects

	Dependent variable: Net IRR				
	1	2	3	4	5
Alumni tie	0.005 (1.528)				
MBA alumni tie		1.363 (1.771)			
Undergraduate tie			-2.371 (3.216)		
Postgraduate tie				1.547 (1.620)	
Percentage of alumni					1.985 (4.632)
Fund size (log)	-8.007*** (2.130)	-8.022*** (2.124)	-8.027*** (2.102)	-8.003*** (2.105)	-7.992*** (2.111)
Fund sequence (log)	1.126 (0.940)	1.095 (0.927)	1.105 (0.942)	1.112 (0.932)	1.095 (0.927)
Same state	1.280 (0.935)	1.206 (0.857)	1.317 (0.873)	1.120 (0.859)	1.154 (1.010)
Previous GP Relationship	-1.108 (1.281)	-1.105 (1.247)	-1.094 (1.251)	-1.142 (1.273)	-1.146 (1.305)
Previous GP IRR	-0.924*** (0.232)	-0.925*** (0.231)	-0.927*** (0.235)	-0.925*** (0.232)	-0.925*** (0.231)
Consulting experience (%)	4.708 (4.701)	4.612 (4.662)	4.675 (4.21)	4.561 (4.658)	4.666 (4.664)
Banking experience (%)	-1.042 (4.105)	-0.919 (4.037)	-1.066 (4.078)	-0.922 (4.045)	-0.993 (4.061)
Accounting experience (%)	-16.419 (14.929)	-17.006 (14.813)	-16.269 (14.888)	-17.164 (14.884)	-16.706 (15.019)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes
F.E. General Partner	Yes	Yes	Yes	Yes	Yes

Table 26 continued

	Dependent variable: Net IRR				
	1	2	3	4	5
Observations	1,054	1,054	1,054	1,054	1,054
Adjusted R-squared	0.5019	0.5022	0.5027	0.5025	0.5021

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the OLS results of the main regression described in Eq. 3 and various model specifications, where the dependent variable is the net IRR of a fund. The independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree from the university linked to the endowment which invested in the fund (actually or hypothetically). *MBA alumni tie* indicates whether an alumni tie is (also) generated through an MBA degree. *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for both degree levels. *Fund size* and *Fund sequence* refer to the natural logarithm of funds' committed capital and fund series according to fund family classifications within GPs. *Same state* indicates whether fund offices are located within the same state as university endowment investment offices. *Previous GP Relationship* is a dummy variable that equals one where endowments have invested at least once before with a GP. *Consulting experience*, *Banking experience* and *Accounting experience* are the percentage of fund managers within a fund that have a background in the respective areas. We apply fixed effects to vintage year, fund strategy, endowment and GP. Robust standard errors (in brackets) are clustered at the endowment level

Table 27 The odds of investment with interaction terms

Panel A: Logistic regressions	Dependent variable: Investment					
	1	2	3	4	5	6
Alumni tie	0.531*** (0.194)	0.415* (0.238)	0.728*** (0.234)	0.562*** (0.203)	0.683*** (0.175)	0.825*** (0.228)
MBA alumni tie		0.389* (0.224)				
Top 20 university			-0.850*** (0.141)			
Alumni tie*Top 20 university			-0.287 (0.340)			
Public institution				1.129*** (0.102)		
Alumni tie*Public institution				-0.075 (0.398)		
System institution					0.478*** (0.088)	
Alumni tie*System institution					-0.729** (0.318)	
Endowment experience						-0.838*** (0.838)
Alumni tie*Endowment experience						-0.510 (0.338)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes	Yes

Table 27 continued

Panel A: Logistic regressions	Dependent variable: Investment					
	1	2	3	4	5	6
Observations	15,681	15,681	15,681	15,681	15,681	15,681
Pseudo R-squared	0.3116	0.3105	0.3108	0.3107	0.3113	0.3107
Panel B: OLS regression	1	2	3	4	5	6
Alumni tie	0.031** (0.013)	0.025 (0.016)	0.045** (0.020)	0.030** (0.015)	0.038*** (0.016)	0.055*** (0.019)
MBA alumni tie		0.015 (0.018)				
Top 20 university			-0.030*** (0.007)			
Alumni tie*Top 20 university			-0.020 (0.026)			
Public institution				0.053*** (0.005)		
Alumni tie*Public institution				0.003 (0.027)		
System institution					0.022*** (0.004)	
Alumni tie*System institution					-0.042** (0.019)	
Endowment experience						-0.030*** (0.007)
Alumni tie*Endowment experience						-0.040 (0.024)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,681	15,681	15,681	15,681	15,681	15,681
R-squared	0.2404	0.2404	0.2403	0.2404	0.2403	0.2403

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main regression described in Eq. 1 combined with an additional interaction term involving the main variable *Alumni tie* and a diverse set of variables of interest. Panel A shows the results for the logistic setup used throughout the paper, while Panel B presents results using a OLS framework. The dependent variable indicates whether an endowment committed capital to a fund. It takes the value of one for actual investments and zero for hypothetical possible investments according to our counterfactual approach, which classifies funds of similar vintages, strategy types and size (50% to 150% of invested fund) as investment alternatives to each actual investment. The main independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* shows whether an alumni tie is (also) generated through an MBA degree. *Top 20 university*, *Public institution* and *System institution* (e.g. some institutions are part of a group of schools located in different cities, such as the University of California) show the classification of universities connected to the observed endowment. *Endowment experience* is a dummy variable indicating whether a university is among the top 50% most experienced institutions in our sample, with the value being equal to one when they have made at least 37 fund commitments. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 28 The performance of investments into alumni funds with interaction terms

	Dependent variable: Net IRR					
	1	2	3	4	5	6
Alumni tie	1.314 (1.819)	-1.884 (1.295)	0.647 (1.688)		1.234 (1.533)	
MBA alumni tie		9.943*** (3.230)		16.464** (7.718)		8.970*** (2.708)
Top 20 university			-5.662*** (1.343)	-4.941*** (1.387)		
Alumni tie*Top 20 university			0.972 (3.228)			
MBA alumni tie*Top 20 university				-8.501 (8.807)		
Endowment experience					-5.614*** (-1.330)	-5.074*** (1.381)
Alumni tie*Endowment experience					0.122 (3.290)	
MBA alumni tie*Endowment experience						-0.749 (5.343)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,054	1,054	1,054	1,055	1,056	1,054
Adjusted R-squared	0.1058	0.1193	0.1049	0.1189	0.1048	0.1181

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main OLS regression described in Eq. 3 and various model specifications, where the dependent variable is the *net IRR* of a fund. The independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* indicates whether an alumni tie is (also) generated through an MBA degree. *Top 20 university* refers to the ranking of the endowment's university, following the same approach as throughout paper. *Endowment experience* is a dummy variable indicating whether a university is among the top 50% most experienced institutions in our sample, with the value being equal to one when they have made at least 37 fund commitments. We use the same control variables as in all the other performance regressions of the paper. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

Table 29 The performance of investments into alumni funds with winsorized returns

	Dependent variable: Net IRR				
	1	2	3	4	5
Alumni tie	0.577 (1.510)				
MBA alumni tie		4.731** (2.122)			
Undergraduate tie			-2.393 (1.802)		

Table 29 continued

	Dependent variable: Net IRR				
	1	2	3	4	5
Postgraduate tie				2.415 (2.537)	
Percentage of alumni					6.297 (6.076)
F.E. Vintage	Yes	Yes	Yes	Yes	Yes
F.E. Type	Yes	Yes	Yes	Yes	Yes
F.E. Endowment	Yes	Yes	Yes	Yes	Yes
Observations	1,054	1,054	1,054	1,054	1,054
Adjusted R-squared	0.1339	0.1392	0.1348	0.1356	0.1357

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table presents the results of the main OLS regression described in Eq. 3 and various model specifications, where the dependent variable is the *net IRR* of a fund, winsorized at the 10% and 90% levels. The independent dummy variable *Alumni tie* equals one when at least one fund manager obtained a degree from the university linked to the endowment that invested in the fund (actually or hypothetically). *MBA alumni tie* indicates whether an alumni tie is (also) generated through an MBA degree. *MBA alumni tie* indicates whether an alumni tie is (also) generated through an MBA degree. *Undergraduate tie* and *Postgraduate tie* highlight whether a potential alumni tie effect is seen for such degree levels. *Percentage of alumni* is the proportion of a fund's managers that attended the same university of any existing tie. We use the same control variables as in all the other performance regressions of the paper. We apply fixed effects to vintage year, fund strategy and endowment. Robust standard errors (in brackets) are clustered at the endowment level

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