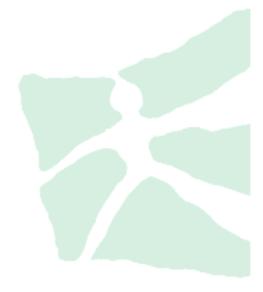School of Finance

University of St.Gallen

WINNING A DEAL IN PRIVATE EQUITY: DO EDUCATIONAL NETWORKS MATTER?

FLORIAN FUCHS
ROLAND FÜSS
TIM JENKINSON
STEFAN MORKOETTER

Winning a Deal in Private Equity:
Do Educational Networks Matter?

Florian Fuchs [a]

University of St.Gallen

Roland Füss [b]

University of St.Gallen

Tim Jenkinson [c]

University of Oxford

Stefan Morkoetter [d]

University of St.Gallen

December 2017

(First version: June 2016)

Abstract

In this paper, we investigate the role of educational networks in private equity. Network ties between fund managers and CEOs of target companies could play a role in sourcing proprietary deals and winning competitive transactions. We find that educational ties between the management teams of acquiring funds and the target company are frequent, and increase the odds of winning a deal. In competitive transactions, exclusivity of networks tends to matter more than the university from which it derives. In addition, educational ties also mitigate prevailing local bias. However, the evidence that such network deals produce higher returns for investors is limited at best.

Keywords: *Investment Choice, Deal Sourcing, Networks, Social Ties, Buyout*

JEL Codes: G11, G15, G24, G34

[a] florian.fuchs@unisg.ch   [b] roland.fuess@unisg.ch   [c] tim.jenkinson@sbs.ox.ac.uk
[d] stefan.morkoetter@unisg.ch

Winning a Deal in Private Equity: Do Educational Networks Matter?

December 2017

Abstract

In this paper, we investigate the role of educational networks in private equity. Network ties between fund managers and CEOs of target companies could play a role in sourcing proprietary deals and winning competitive transactions. We find that educational ties between the management teams of acquiring funds and the target company are frequent, and increase the odds of winning a deal. In competitive transactions, exclusivity of networks tends to matter more than the university from which it derives. In addition, educational ties also mitigate prevailing local bias. However, the evidence that such network deals produce higher returns for investors is limited at best.

1 Introduction

Investors commit capital to private equity funds in order to gain access to valuable investment opportunities that may not be available to them through other channels. As the private equity sector has matured there is increasing competition for deals, with many transactions using a formal auction process, run by an intermediary. However, private equity funds also search for "proprietary" deals. In this paper, we explore the importance of one potential source of competitive advantage – educational networks – in both identifying and winning deals. However, the expected effect of educational ties is not obvious as they can both provide access to private information and potentially bias a decision maker (e.g., Engelberg et al. (2012), Rousseau and Stroup (2015)). The value of these networks to investors ultimately depends on whether they result in better returns, which we also analyze.

We focus on university networks and construct ties between one or more of the private equity fund partners and the CEO of the target company. We do not limit our attention to contemporaneous attendance at university, but at the potential impact of sharing an alumni network. We analyze the importance of educational ties created by undergraduate, graduate and, separately, MBA degrees. Since we do not require such ties to involve direct interactions they could work through many alternative channels, from homophily ("birds of a feather flock together") to commonalities among the group of people attracted to an institution (Ishii and Xuan (2014)). Cohen and Malloy (2010) highlight that alumni networks are a particularly effective kind of social network that allows one to amass information about other graduates and common acquaintances due to people's self-selection into programs, which generates both a higher level of interaction and longer-lived relationships.

There is evidence that such ties are valuable in public markets: mutual funds use them in their investment choices and generate higher performance with such holdings (Cohen et al. (2008)), and there is evidence that security analysts, CEOs, and bankers all

benefit from networks related to their previous educational attainments (e.g., Cohen et al. (2010), Butler and Gurun (2012), Engelberg et al. (2012)). More generally, personal and professional networks have been suggested as a powerful source of deal flow generation (e.g., Fenn et al. (1997), Teten and Farmer (2010), and Gompers et al. (2016a)), and research in the economic and sociological literature stresses the value of acquaintances or "weak ties" (Granovetter (1973, 1983)) especially for individuals in management positions (e.g., Wegener (1991), Brown et al. (2012)). Previous research has analyzed the importance of repeated business relationships for venture capital in the form of syndication networks (e.g., Sorensen and Stuart (2001, 2008), Hochberg et al. (2007, 2010), Hochberg et al. (2015)). However, the deal sourcing networks of buyout funds are of a different kind. While educational ties in venture capital proxy for similarities between the actors (e.g., Sunesson (2009), Bengtsson and Hsu (2015)), for buyout investors they more likely help to identify, and gain access to, potential target firms. Furthermore, in the case of start-up companies, the founding entrepreneurs actively reach out to funds, whereas in the case of buyout funds it is typically the fund partner that approaches potential target firms.

To measure the network effect, we employ a novel data set, which comprises the educational and professional histories of partners who manage private equity funds and CEOs of the target firms at the time of acquisition. Buyout funds and acquisition targets are primarily located in the United States and Western Europe, which are the two largest buyout markets. An important feature of the data is the allocation of partners at the *fund* rather than investment firm (General Partner) level. Management teams in private equity comprise a small number of experienced professionals who are highly incentivized by their own financial commitments and their compensation arrangements. Observing the allocation directly at the fund level reduces noise related to larger organizations that manage multiple lines and sequences in parallel. Our analysis focuses on traditional buyout and growth deals, excluding add-on and venture capital transactions due to their different dynamics. Target firms are public and private enterprises from various industry sectors and countries. Lastly, we focus on investments up to 2010 to allow for sufficient

time to measure subsequent performance. This leaves us with a final sample of 3,051 investments comprising 2,606 companies (with 2,599 unique CEOs). A total of 1,757 buyout funds from 904 unique firms compete for these investments (with 3,939 unique partners).

Our main findings are as follows. First, we find that educational ties frequently exist – in 15% of buyout deals – and that they significantly improve the odds of a fund winning a deal (by 79%). The effect is strong for acquisitions of private firms but not for public-to-private deals. Second, we document that a higher degree of exclusivity (i.e., lower competition among funds with the same educational ties) increases the odds of a fund winning a deal significantly. Thus, it is not necessarily just the largest and widest network, nor just the one that produces the highest number of CEOs that is of value for the fund. Instead, the evidence suggests the value of a network in competitive settings is greatly elevated by the exclusivity of its ties. Third, we show that proximity to the acquired firm matters, which we measure as the geographic distance between the closest fund office and the company's headquarters. In this context, we interpret proximity as a local network. However, we also show that educational ties reduce a potential local bias in transactions by up to a fifth. Therefore, educational networks can substitute, to some extent, with local networks of professionals.

Finally, we analyze the relevance of these networks for investors by evaluating whether transactions with a pre-existing educational tie generate higher returns. The evidence suggests that the deal sourcing channel is not a systematic driver for post-deal performance per se. This is not surprising, as it could imply that private equity funds are able to pay consistently less (or more) for companies where they had network ties. Instead, we confirm the relevance of market timing, namely the length and the prevailing market return during the holding period. It seems that while buyout funds use educational ties for investment generation, post-deal returns are still primarily driven by market timing as well as the financial and operational value-enhancing measures that the funds implement during the lifetime of the investment.

These results withstand several robustness tests. In particular, they remain robust controlling for previous experience of the partners in professional services firms and banks, where other networks are likely to arise. Furthermore, they hold when controlling for fund characteristics, such as size and sequence, and for various plausible restrictions on deal and fund attributes.

The remainder is organized as follows. Section 2 discusses the institutional background and data we use, and our counterfactual approach. Section 3 provides the main results. Section 4 presents a number of robustness checks, and Section 5 investigates whether deals sourced from educational networks perform better, or worse, than other deals. Section 6 concludes.

2 Institutional background and data

2.1 Deal sourcing in the buyout industry

The private equity industry has become an important asset class with more than \$2.4 trillion in assets under management, of which two-thirds are related to buyout and growth activity.[1] Funds are typically set up as a limited liability partnership with a fixed lifetime of 10-12 years. The private equity manager acts as the general partner (GP) to the fund, and receives an annual management fee as well as a share of the profits. While private equity managers can raise and manage more than one fund at a time, they usually assign one or more partners to a specific fund. These partners are then responsible for the fund's deal sourcing activities as well as the management of its investments. The ability to identify, and acquire, good investment opportunities is one of the key capabilities of a successful private equity fund.

Differences in the approach to deal sourcing are an important performance driver. Fenn et al. (1997) outline that GPs compete with intermediaries (such as investment banks and deal brokers) to identify potential target firms. Intermediated deals tend to be

---

[1] *Source:* Preqin, Private Equity Spotlight, September 2016 (data as of 31st December 2015).

less attractive as they are run as open auctions, and can involve significant costs in terms of due diligence. In a related study, Teten and Farmer (2010) conclude that top-quartile funds have substantial scale in deal origination and a focus outside the most competitive markets. They report that personal and professional relationships provide half of the internal deal flow, followed by word-of-mouth and cold calls. More recently, Gompers et al. (2016a) survey a broad sample of GPs and name proprietary deals, where the fund acts as an exclusive buyer, an important determinant of value creation. A third of deals are "proactively self-generated", 5-10% originate from each the management's and the investor's executive network, and the remaining come from agents and other private equity firms. However, despite the frequent notion of the importance of active deal sourcing and the role of networks across different studies, empirical evidence on the nature and influence of these relationships remains sparse.

The importance of deal sourcing has likely increased as the industry has grown and matured, and an increasing number of funds compete for the same investments. Metrick and Yasuda (2011) name the level of competition among funds as the main factor influencing performance, followed by financing conditions. In addition, competition for investment targets also originates from strategic acquirers that constantly monitor the market. This has different implications for the funds, namely that it affects their deal sourcing efforts. Some authors report a recent decline in performance persistence (e.g., Harris et al. (2014), Braun et al. (2016)) indicating that it becomes more challenging to source promising investments. Other studies document a countercyclical relationship of capital and deal flow to fund performance (e.g., Phalippou (2007), Ljungqvist et al. (2009)). This likely drives funds to broaden deal sources and increasingly tap upon their own networks to close deals early on. Finally, Ishii and Xuan (2014) call for an extension of the traditional target centered view by the acquirer-target relationship. In their study of corporate takeovers, the authors record that social ties influence both decision making and subsequent merger performance.

2.2 The role of educational networks

There is a growing literature on networks in finance (see Allen and Babus (2009) for an overview). In particular, social and educational ties between the top management teams of different organizations or interest groups prove valuable across disciplines.[2] For example, company outsiders, such as sell-side analysts, use them to initiate relationships with the senior management of (public) firms (Cohen et al. (2010)). Information transfer via ties allows banks and corporates to establish trust and reduce contracting frictions (Engelberg et al. (2012)). On the other hand, they can also induce favoritism and introduce governance problems (e.g., Fracassi and Tate (2012), Butler and Gurun (2012)).

In terms of value, Engelberg et al. (2013) report that university connections are about four times more valuable than professional and other social ties. Furthermore, the authors do not find a significant difference between local and remote connections. Networks can likewise enlarge geographic exposure for their members (Cumming and Dai (2010)), and act as a barrier to enter a local market (Hochberg et al. (2010)).

In the public takeover market, Cai and Sevilir (2012) and Renneboog and Zhao (2014) find that board relationships influence transaction likelihood and performance alike. Ishii and Xuan (2014) extend the evidence to social ties. Using educational networks, Cohen et al. (2008) note mutual fund managers invest heavily in firms to which they are connected, while Sunesson (2009) reports an increased likelihood of matching a venture capitalist with an entrepreneur as well as with another venture capitalist.[3] Bengtsson and Hsu (2015) find co-ethnicity to increase investment likelihood in venture capital, while Gompers et al. (2016b) investigate ethnic, educational, and career background for syndication. Lastly, Jääskeläinen and Maula (2014) report indirect ties to promote investment identification, while direct ties ease the investor's quality assessment.

---

[2]In general, social networks serve three purposes: flow and quality of information, source of reward and punishment, and "trust" that others will do the "right" thing (Granovetter (2005)). Therefore, they help to overcome asymmetric information, moral hazard, and costly search (Kuhnen (2009)).

[3]Besides social ties, the venture capital literature documents the value of economic ties (prior co-investments) and the role of spatial distance with regard to syndication networks. We refer to Sorensen and Stuart (2001, 2008), Hochberg et al. (2007, 2010), Chen et al. (2010), and Hochberg et al. (2015).

Evidence on the existence and value of social ties in the buyout industry is scarce. Stuart and Yim (2010) show that board networks influence the likelihood of becoming a target in a going-private transaction, while Wu (2011) finds that MBA networks transfer information among co-investors in syndication. Siming (2014) reports that past employment of managers in financial advisers provides access to profitable business opportunities. However, the relevance of educational networks for investment generation of buyout funds has, to the best of our knowledge, not been investigated so far. Such networks can give the fund a competitive advantage over other investors through easier target identification and reduced contracting frictions throughout the deal negotiation process. However, whether such networks ultimately generate value for funds depends on the extent of competition. We separately test for the impact of network connections on the likelihood of doing a deal and the impact on fund returns.

There are also important differences between buyout funds and other asset classes that allow us to add to the general interpretation of such networks. First, buyout funds focus on identification and access to potential target firms, while educational ties in other markets proxy for similarity between actors (Sørensen (2007) call the matching in venture capital "two-sided"). Second, in general, buyout funds initiate the process, whereas entrepreneurs actively reach out to venture capitalists for funding. Third, buyout partners have to convince senior managers at target companies, who act as agents for shareholders. Buyout funds typically acquire majority stakes in companies with a proven business model and in a number of cases replace the management team to resolve prior governance issues (e.g., Gompers et al. (2016a)).

Finally, to be of relevance for the deal origination, it is not only the fund partners who need to be active network participants but the target firm management is also open to such approaches. However, there should be little doubt about the connectedness of CEOs as they are owners of powerful networks themselves (e.g., Gottesman and Morey (2006a), Kirchmaier and Stathopoulos (2008), Brown et al. (2012), Liu (2014)). Overall, we expect educational networks to support the fund managers in their deal sourcing efforts.

2.3   Data on funds and transactions

The data is sourced from PitchBook, a database for global M&A, Private Equity and Venture Capital transactions.[4] We split the following discussion into the four components: funds, partners, acquisition target firms and CEOs, and deal performance.

First, we start with buyout funds for which we can identify their management teams and for which fund size, sequence, and location is non-missing. This yields 1,757 funds from 904 unique firms (General Partners) spanning vintage years from 1984 to 2010.[5] We limit the sample period up to the vintage year 2010 to allow for sufficient time for subsequent measurement of performance. Table 1 breaks the fund sample down by vintage year. The average fund manages USD 794 million in capital (median: 316) and is the 4.5th fund of the general partner (median: 2.0). A quarter of funds are first-timers and around two-thirds are based in the United States. Roughly a half of funds provide performance information as an internal rate of return (IRR) and/or money multiple (TVPI) as a last reported figure.[6] The average fund provides investors with an IRR of 13.3% (median: 12.0%) and a total value of 1.62 times the paid-in capital (median: 1.54).

Table 1 about here: Buyout fund sample by vintage year

Second, the database lists 4,333 unique individuals for the management teams of these funds (some are associated with multiple funds). An important feature of the data is

---

[4]PitchBook (www.pitchbook.com) obtains data from filings, press releases, and websites. Research teams collect, verify, and integrate the information and survey companies, advisers, investors, and lenders to cross-validate collected data. In a recent study, Brown et al. (2015) compare commercial private equity data sets of PitchBook, Preqin, Cambridge Associates, and Burgiss. They conclude that for North America all provide similar performance signals while outside coverage varies substantially. Harris et al. (2016) find the performance data of Burgiss and Pitchbook qualitatively and quantitatively similar.

[5]A buyout defines a transaction where a fund acquires a significant amount of equity in a business, whereas vintage indicates the year that a fund held its final close and/or began making investments. In total, the database lists 3,837 buyout funds (up to vintage year 2010). Our main restriction is on management teams that provide at least one partner's biography and education (passed by 2,005 funds). Requiring fund size, sequence, and location leaves 1,884 funds. Lastly, we remove 127 funds from the sample that do not pass our restrictions as potential matches in the counterfactual approach described below (i.e. they do not have at least one other investment in the industry and geographic region clusters or are not anymore in investment period). This results in a final sample of 1,757 funds.

[6]The internal rate of return (IRR) is the rate at which the net present value of all cash flows equals zero. Total value to paid-In (TVPI), also called investment or money multiple, represents the money returned to investors plus the unrealized investments relative to the capital contributed to the partnership.

the classification of individuals at the fund rather than the general partner level. The database sources this information from regulatory filings, fundraising information, investor websites and surveys, and complements it with the person's role and position within the firm, e.g., their appearance as lead partner or as a board member of portfolio firms. We follow the classification with a few exceptions where the partner carries an obvious non-managing title (e.g., Analyst, Associate), and refer to them collectively as partners of the fund.[7] Our data also includes partners who have historically been involved even though the partner has left the fund in the meantime. The average management team in our sample consists of 3.5 partners (median: 3.0). For 3,939 partners or 91% of the sample, a textual biography and educational background is available (we require at least the name of the academic institution).

Third, we compile a sample of investments of these buyout funds for which the target company CEO profile can be identified. The database is filtered based on the following criteria: (i) We include only buyout and growth/expansion transactions (this covers around 85% of initial deals and excludes venture capital). (ii) We include only companies that both identify the CEO at the time of the deal and list biography and education (around a third of transactions). (iii) As we only include funds up to vintage year 2010 we cannot fully model the competitive situation in the years after and, thus, exclude investments from subsequent years.[8] (iv) We exclude add-on transactions, which typically support a prior acquisition in a buy-and-build strategy and follow their own dynamics and determinants. For example, the management of the acquiring portfolio company is actively involved and firms differ particularly in terms of firm size, profitability, and leverage (e.g., Morkoetter and Wetzer (2015)). (v) We require non-missing values on deal date, company location and industry sector, and include only the first time a fund invests

---

[7]Their actual job titles comprise a variety of titles, e.g., Founding Partner, Managing Partner, Partner, Managing Director, Senior Partner, Investment Director, Director, Operating Partner, Managing Principal, Principal, or General Partner (list not exhaustive).

[8]For example, when a fund with vintage year 2010 acquires a company during 2012 it is likely that also funds with vintage year 2011 compete for it. However, these are excluded from the sample due to the required time lag on performance. While this essentially excludes the majority of investments from funds in the last years of the sample, it is a necessary condition to fully reflect the competitive situation.

in a company in order to determine the initial contact point. (vi) We require investments to take place within five years following the vintage year of the fund. This is enforced for consistency with the counterfactual approach (see description in Subsection 2.5).

This leaves us with a final sample of 3,051 transactions comprising 2,606 companies and 2,599 individual CEOs (some firms are involved in multiple deals and within one transaction several funds can invest).[9] Table 2 presents a break-down of the investments by geography, industry sector, deal type, and year. Around two-thirds of transactions are in North American based companies with almost all the remaining being European-based. The industry split exhibits a high concentration on business and consumer services, followed by the information technology and healthcare sectors. In terms of transaction type, we observe that the minority of investments represent a traditional delisting of a public company. Furthermore, around 12% of deals are classified as management buyout/in and 13% as secondary buyouts. Investment years range from 1987 up to 2010 yet most of our investments take place in the post-2000 period.

Table 2 about here: Characteristics of investment sample

Fourth, we add deal-level returns to the investment sample. However, it is important to note that the availability of deal-level data in private equity is limited at present, with most information only being available at the fund level. The data that we construct, is sourced from PitchBook and Preqin and complemented with data from one anonymous limited partner. This approach yields a total of 535 deal-level IRRs (mean: 29%, median: 20%) and 624 TVPI multiples (mean: 3.0x, median: 2.4x).[10] The average holding duration is 6 years and the deal sample covers around 250 different funds, 55% are U.S. based and less than 10% are first-timers, from approximately 150 unique general partners.[11]

---

[9]The database lists a total of 24,506 buyout and growth/expansion transactions from 19,866 companies for our sample of buyout funds. The major restrictions are the requirement on CEO data and the exclusion of add-on transactions and investments after 2010 (combined 85% of excluded deals).

[10]The variables are winsorized at the 1% tail.

[11]Braun et al. (2016) recently presented a broad sample of deal-level returns in their investigation of performance persistence. Their data shows a median multiple of 1.9 for realized investments and higher multiples for the 2000-2004 period (median of 2.0) compared to the 2005-2013 period (median of 1.5).

While this data can give only a glimpse into the deal return structure of buyout funds, it still provides us with insights into the role of educational networks for subsequent investment performance. Ideally, one would also complement these ex-post returns with an analysis of entry valuations to test the role of educational ties for information transfer purposes. However, we have not been able to source such data for a sufficient coverage of our investment sample. Finally, as the performance data is not available for the complete data set, we will address concerns about a possible introduction of selection bias into our results in our later discussion of robustness checks.

2.4 Biographies of partners and CEOs

The information on each individual in the database comprises the name, a textual biography, and a list of educational achievements. The latter split the degree institutions by name, type, field, and year.[12] Table 3 presents the most frequently observed institutions for both partners and the target company CEOs. A majority of managers graduated from well-known institutions and most are represented with more than one academic degree. The fund partners are more likely to have graduate and MBA degrees compared to their corporate counterparts. They are also much more concentrated on a selected number of institutions and this concentration is even more pronounced for MBA degrees. Harvard, especially, enjoys a significant presence, heading both lists with the highest number of graduates. These findings are consistent with earlier studies on senior managers in mutual funds and venture capital funds (e.g., Cohen et al. (2008, 2010), Sunesson (2009), Zarutskie (2010)). We want to stress this point as our analysis requires the fund partners and target firm CEOs to graduate from the same academic institution in order to create an educational tie.

Table 3 about here: Degree institutions of partners and CEOs

---

[12]Graduation year is only available for half of the degrees and the textual biography does not allow to determine the manager's age or origin. We omit gender and ethnicity in the analysis since the large majority of partners and CEOs are male and we do not expect a significant effect from cultural differences.

The value of the educational attainment for deal sourcing may also depend on the partner's previous professional experience. To account for this, we examine the (relationship-oriented) work history of the partners with regard to professional services firms and banks. Specifically, we parse experience in management/strategy consulting, with a major accounting firm, and with an (investment) bank.[13] We observe more than half of funds have at least one partner with prior banking experience, a quarter with a consulting firm, and a fifth with a major accounting firm (team means are 33%, 11%, and 7%, respectively).

2.5 Counterfactual approach

Under perfect information we would be able to identify all funds that evaluated a target firm and subsequently joined the bidding (if existing). As the data does not provide us with such information, we use a counterfactual approach. We identify funds with a suitable profile that *could* have invested in the target firm as well and that act as competitors to the winning fund. This approach follows the literature on social, board and syndication ties (e.g., Gompers and Xuan (2009), Sunesson (2009), Stuart and Yim (2010), Siming (2014), Bengtsson and Hsu (2015), Gompers et al. (2016b)).[14] To assess the value of educational networks, we determine whether ties between the management teams of the fund and the target firm give the fund an edge over other potential bidders during this deal generation process.

We create our set of counterfactual investments similar to Bengtsson and Hsu (2015) and set out the following three criteria: (i) the fund is at the point of time the deal takes place in its investment period, which we define as the 5-year period following the vintage

---

[13]Consulting includes McKinsey & Co, BCG, Bain & Co, Oliver Wyman, Roland Berger, Booz/Strategy&, and L.E.K., whereas accounting comprises PwC, Deloitte, KPMG, EY, and Arthur Anderson. Banking is based on a list of 50 global banks compiled by "The Banker" as well as major investment banks such as Lehman Brothers, Bear Stearns, Lazard, Rothschild (list not exhaustive).

[14]Gompers and Xuan (2009) investigates the likelihood of becoming the acquisition target of a public company, while Sunesson (2009) uses a cross-section from 2002 to investigate the matching behavior between venture capitals with entrepreneurs as well as with other venture capitalists. Stuart and Yim (2010) relate board interlocks with the probability of going private transaction. Siming (2014) simulates the mandates of financial advisers by private equity firms. Bengtsson and Hsu (2015) analyze ethnic matching between entrepreneurial founders and venture capital partners in the U.S., and Gompers et al. (2016b) the syndication likelihood among venture capital partners.

year[15], (ii) the fund makes at least one other investment in the same geographic region, and (iii) at least one other investment in the same industry sector (we validate with data up to 2015).[16] The criteria are deliberately defined in a broad sense as we include various controls and matching procedures in the following analysis to account for differences between the funds.[17] This procedure leaves us with a set of around 750,000 counterfactual bidders and an average competition ratio of 247 from other funds (median: 243). While this number appears high, it is important to consider carefully what it measures. It represent all the funds that *in principle* could have identified the same target firm and invested as well. However, it is not saying that every fund has actually evaluated the company and/or competed in a bidding process.[18] The goal is to explain the access the winning fund has to the target via the use of a network measure. To mitigate potential concerns about a high counterfactual investment ratio we present a variety of robustness checks on model specification, including several fixed effects settings, and confirm our main results for both a random draw and propensity score matching (see Subsection 4.1).

Finally, when assessing the competition level over time, we note an increase in the number of potential investors per deal. This is consistent with the growth of the buyout industry and indicates that deal sourcing has likely become more competitive for the funds over the years. Yet, a comparable increase in the number of competing funds that also have an educational tie cannot be detected. Thus, if the hypothesis that educational ties increase the likelihood of winning an investment is true, then its importance should also increase with more competition.

---

[15]Private equity funds usually have a lifetime of 10-12 years and invest in the first five years after initiation (e.g., Metrick and Yasuda (2010)).

[16]The definitions follow the classification in the database and allow for a wide range of competition as we expect the educational ties to bridge across borders (e.g., country). Geographic region splits into Africa, Americas, Asia, and Europe. Industry sector differentiates between Business Products and Services (B2B), Consumer Products and Services (B2C), Energy, Financial Services, Healthcare, Information Technology, and Materials and Resources. We refer to Table 2 for related statistics.

[17]Outlining the difficulty to define criteria for generating a control group, Stuart and Yim (2010) even use an unrestricted comparison sample (based on all public firms in their case).

[18]Fenn et al. (1997) note that some investment banks actively distribute their offering memorandums to up to 100 potential investors, while Gompers et al. (2016a) report that buyout managers consider on average 100 opportunities for every 3.6 closed deals (median: 3.0).

If educational ties are indeed an important driver for deal generation, we should observe this case more frequently than expected. Table 4 shows a cross-tabulation of actual versus counterfactual fund investments for educational ties (Panel A) and MBA ties (Panel B). Out of the 3,051 investments in our sample, 453 have an educational tie, whereas 130 have a tie based on an MBA degree. From these descriptive statistics we can see that the share of ties is two times as high for the actual investments (14.9%) compared to the counterfactual sample (7.4%). Similarly, when we perform the analysis based on common MBA degrees the resulting ratio for ties is more than 1.5 times as high for actual investments (4.3% compared to 2.4%). This gives a first indication that educational networks may play a role for buyout funds when they source their investments.

Table 4 about here: Investment generation and educational ties

3 Empirical results

3.1 Educational ties in deal sourcing

We first test whether the university background of the private equity managers matters in terms of winning a deal via educational links to the CEO.[19] Let index j refer to the deals in the investment sample and index i to the buyout funds that compete for each transaction. We define a multivariate logistic regression model with a binary response variable $Y_{i,j}$, which is set to one if fund i wins deal j (actual investment) and to zero otherwise (counterfactual investment), and probability π_{ij}. The odds are then defined as the ratio of probability π_{ij} to its complement $1 - \pi_{ij}$, and the logit transformation gives

---

[19]We do not expect endogeneity concerns in this relationship due to simultaneity since the educational ties are formed many years before the individuals become partners (i.e., there is a clear timeline).

the expected log of the odds as

$$ln\left(\frac{\pi_{i,j}}{1-\pi_{i,j}}\right) = \alpha + \beta \, Educational \, Tie_{i,j} + \tag{1}$$
$$\psi \, Distance_{i,j} + \delta \, Experience_i +$$
$$\gamma \, Fund_i + \lambda \, FE_j(Year, \, Region, \, Industry).$$

Since we focus on target firms that are actually taken over, we model the relative probabilities among bidding funds. Thus, we do not need to worry about the overall probability that the firm is acquired (Rousseau and Stroup (2015) use a similar setup for director movement). The variable of interest is the $Educational \, Tie_{i,j}$ between the partners of fund i and the CEO of target firm j. As the competitive situation is relative to the point of time a deal is made, the model is cross-sectional and, thus, does not need a time index. Control variables include the $Distance_i$ between the target firm's headquarters and the closest fund office (see Subsection 3.3 for more details), the partners' previous professional experience, and fund characteristics.[20] The vector $Experience_i$ measures the partner's exposure to consulting, accounting, and banking prior to joining the fund as a fraction of the management team. Such experience may have opened up alternative networks to the partners. Another vector, $Fund_i$, comprises committed capital and sequence number to capture organizational factors, which correlate with assets under management and institutional networks, and indicator variables for first-time and U.S. based funds. The former can incorporate team size, support functions, and investment strategies. Finally, fixed effects add investment year, geographic region, and industry sector, which allows us to address concerns about endogeneity due to an omitted variables bias.[21] For example, fund-firm pairs with educational ties may also have close ties in terms of industry specialization or geographic location.

Table 5 reports our results. We find that funds with an educational tie to the target

---

[20]We do not know the seller's identity in the deal to control for different types (e.g., blockholders).

[21]We refer to Table 8 for alternative specifications of fixed effects (including target firms and investors).

company CEO increase their odds of winning the deal by 79% compared to other funds active in the same market at the same time (Column (1)).[22] This is in line with the univariate evidence and represents an economically significant effect. Restricting ties to the same degree type, graduation period or both remain significant (Columns (2) to (4)). In particular, graduation time strongly increases the odds extending evidence from mutual funds and their investments in public companies (Cohen et al. (2008)). Such ties likely incorporate direct social interaction and individuals of similar age. In addition, business school ties show slightly lower coefficients compared to other degree types (Column (5)). MBA degrees are frequently observed in top management teams including the buyout fund partners in this study. Educational studies regularly describe the wide network of alumni and organizations such a degree opens up as a pure side-benefit (Baruch and Peiperl (2000)), while our findings provide empirical evidence on their actual value.[23]

Table 5 about here: Educational ties and the odds of winning a deal

With regard to control variables, we see a strong negative effect associated with the geographic distance between the fund and the target firm, which we will discuss in more detail in Subsection 3.3. The professional experience variables for the management team, which measure the relative share of fund partners with previous experience in the consulting, accounting, and banking industry, show limited influence except for a slightly positive effect from consulting. Fund teams with a stronger focus on these sectors could have built alternative networks over time or developed other approaches based on their specific experience (e.g., Siming (2014) reports that past employment at a financial adviser is beneficial for future mandates). In particular, partners who have spent their previous professional life in a consulting firm may still enjoy access to the wide industry networks

---

[22]Exponentiating the regression coefficient of 0.583 results in an odds ratio of 1.79.

[23]The literature on mutual funds and corporate managers primarily associates MBA degrees with superior skills and management performance (e.g., Gottesman and Morey (2006a,b)) while the venture capital literature tends to use them as a proxy for business and management education (e.g., Dimov and Shepherd (2005), Patzelt et al. (2009), Zarutskie (2010), Cai et al. (2013), Cai et al. (2016)).

and alumni connections established through their prior employer. Controlling for these alternative networks supports our evidence on education.

Lastly, regarding fund-level controls we see strong significance on fund size and sequence number as well as on the indicator variable for first-time funds. This is not surprising since larger funds typically also make more investments and may have built larger organizations to support deal sourcing, while first time funds likely lack the latter. Larger fund teams are also more likely to have more diversified backgrounds with regard to educational history, and thus access to a broader network (we control for team size in Section 3.2). On the other hand, we do not find any differential effect for U.S. based funds (the robustness checks in Section 4.2 confirm that educational ties in both geographic sub-samples remain significant).

3.2 The exclusivity of educational ties

After confirming the value of educational ties for the deal sourcing process in general, we seek to understand the features that make them most useful and the relevance of the competitive setting the funds operate in. We start by investigating the exclusivity of the tie within the team and the potential relationship to the available team capacity. Evidence from CEO networks suggests that redundant ties do not provide much additional value (Engelberg et al. (2013)). On the other hand, larger teams generally have more exposure to potential deal sources as well as more managerial capacity for the deal sourcing process. In addition, we split the educational ties into different subsets based on the school's position in academic rankings. We use the Times Higher Education (THE) World University Rankings of 2010 and argue that a university's position in the rankings is positively correlated with the magnitude and quality of its network.[24] We interpret magnitude and quality in this context not with regard to the education offered but by the number of alumni in CEO positions that the fund partner can access.

---

[24]We verify our findings with the Academic Ranking of World Universities (ARWU) from the Center for World-Class Universities at Shanghai Jiao Tong University (also as of 2010).

Our findings are reported in Panel A of Table 6. First, we evaluate the strength of an individual tie by the incremental value of a redundant tie and show that the odds increase even more in their presence (Column (2)). This is contrary to evidence on social ties in non-competitive environments and indicates that the ties provide value to the fund aside from a pure identification purpose. Second, although team size is positively related to deal sourcing success, its interaction term with the educational tie is negative (Column (3)). We interpret team size as the overall capacity of the fund's management to pursue deal sourcing efforts. It seems that the existence of educational networks eases the effort. Third, the ranking split shows that not only the ties from high-ranked schools matter. The relatively rarer ties from low-ranked schools also exert an influence on the success rate whenever they exist (Column (4)). When we split the ties into several ranking classes, the increase in the odds ranges from 30% for top-10 schools to above 300% for non-top 100 schools. This finding may be driven by a lower level of competing funds that have access to the same network, which we investigate next.

Table 6 about here: Educational ties and the relevance of exclusivity

We standardize the $Educational\,Tie_{i,j}$ variable by its degree of exclusivity among the competing funds. Specifically, we divide the indicator variables by the number of counterfactual bidders that have an educational tie as well to arrive at the following scaled version of educational ties

$$Scaled\,Educational\,Tie_{i,j} = \frac{Educational\,Tie_{i,j}}{\sum_{i=1}^{n} Educational\,Tie_{i,j}} \, . \tag{2}$$

This effectively transforms the binary variables into a probability (values are bounded between zero and one). The scaled educational ties for transactions where the winning fund has a tie from a top-10 school has an average of only 1.8% (median: 1.2%), while non-top 100 schools have an average of 26.5% (median: 14.3%). The overall sample mean is 10.3% (median: 2.9%). We re-estimate Equation (1) and present results in Panel B

of Table 6. It follows that the funds ultimately winning the deal have up to ten times higher odds of doing so when their tie is more unique (Column (1)). The remaining results highlight one notable difference: the top-10 ranking group becomes insignificant indicating that the edge a tie provides to the fund diminishes if this is no longer a differentiating factor to competing funds (Column (4)).[25] This uncovers another benefit of networks: it is not necessarily only the largest and widest network, not the one producing the highest number of CEOs that is of value to the fund partners. Yet, the ties with the highest exclusivity seem to drive the results the most. Since CEOs graduate from many more different universities than the fund partners, less-represented schools appear to be important for the deal generation.

3.3   Educational versus local networks

In earlier results we saw that geographic distance negatively impacts the deal sourcing success. This is consistent with the literature that reports a "home bias" for various kinds of investment funds (e.g., Sorensen and Stuart (2001, 2008), Chen et al. (2010), and Cumming and Dai (2010) for venture capital firms). Does the presence of educational networks help to overcome such biases? The educational network literature provides evidence on the existence of such distant ties (e.g., Hall (2011)). We interpret proximity to a target firm's headquarters, and thus the company's top management, as a component of local networks.[26] When target firms are located close to the fund's office, identification may play less of a role than for remote target firms. Thus, we suppose that information transfer plays a larger role in these latter cases. Fund partners may use their regional business and social relationships (e.g., country clubs) to sweet-talk a CEO and win the

[25]Using the ARWU ranking the top 10 variable is weakly significant at the 10% level, while all other ranking classes remain highly significant and still exhibit increasing coefficients along the groups.

[26]The data only provides us with the investment office where the partner is based. Ideally, we would also be able to control for the partner's hometown in case it represents a different location to the office.

transaction. We calculate geographical proximity as

$$Distance_{i,j} \;\; = \;\; min\left(\,Haversine\left(\,Headquarter_j,\; Office_{i,k}\,\right)\,\right), \tag{3}$$

which calculates the minimum geographical distance (in km) between the headquarters of the target company involved in deal j and the investment offices (index k) where at least one of the partners of fund i is located.[27]

Table 7 presents our results. Geographic distance has a strong, negative relationship to the odds of winning a deal (Column (1)). However, the interaction effect on educational ties is positive and significant, making the net effect positive if an educational tie exists. Thus, it seems that fund managers can use their educational networks to mitigate the lack of a local network. This evidence is similar to Jääskeläinen and Maula (2014) who find networks of financial intermediaries to reduce local bias and cross-border venture capital deals.

Table 7 about here: Educational ties and geographic distance

Finally, we distinguish between different degrees of distance (Columns (2) to (4)). While the main effect on distance remains strongly negative, the interaction term becomes insignificant only for long distances (above 1,000 km). In addition, interaction effects from unreported regressions suggest that educational ties are more important for European transactions in general (see also Subsection 4.2). To better understand these differences, we look at the investment direction of transatlantic deals (Column (5)). We find an effect for U.S. funds that invest overseas (in Europe), but not in the opposite direction (i.e., foreign funds acquiring American firms). Following our findings on the exclusivity and location of networks, U.S.-related educational ties may be more exclusive in European deals, where the majority of managers are expected to be educated locally. This is likely

---

[27]Distance is expressed in log kilometers in the regressions and calculated according to the Haversine method assuming a spherical earth and ignoring ellipsoidal effects (radius of the earth 6,378,137 meter).

not true the other way around since the educational history of CEOs and fund partners is largely dominated by degrees from U.S. universities.

4 Robustness

4.1 Model specification

It could be that the results from our counterfactual approach are biased by the applied selection procedure. Therefore, to test the robustness of our results, we use different sets of fixed effects to ease concerns about omitted variables and different model specifications. We follow Bengtsson and Hsu (2015) who validate their findings with a similar approach while focusing on ethnic matches in venture capital.

Table 8 presents our results. We split models between the full sample (Columns (1) to (4)) and a one-for-one random draw to counter the chance that results are driven by a high counterfactual ratio (Columns (5) to (8)). The latter is tested by Bengtsson and Hsu (2015) for the same reasons.[28] The first specification in each block follows the same logistic regression formula of deal generation success on educational ties from the main empirical results (see Equation (1)). The second model estimates an OLS model instead but leaves everything else constant. Finally, the remaining two specifications change the fixed effects to the company and the investor level, respectively. While the educational tie remains highly significant, we observe a slightly better model fit using these fixed effects. This indicates that our previous results are rather conservative and the actual economic effects may be even higher. We use two-way cluster-robust standard errors on investor and company level for the OLS models and cluster standard errors on the investor level for the logistic regressions. The coefficients on educational ties (Panel A) and MBA ties (Panel B) are highly significant across all specifications.

---

[28]The creation of random simulation groups is also employed in Renneboog and Zhao (2014). In unreported results, we implemented a propensity score matching approach (which, for example, is used in Siming (2014)), based on the set of control variables and nearest neighbor to control for similarity in the characteristics between actual and counterfactual fund investments and obtain similar results.

Table 8 about here: Robustness of model specification

4.2   Sub-sample robustness

In order to test how robust our main results are, we present educational and MBA ties for various sub-samples in Table 9. We split the sample based on deal characteristics (geography and deal type) and fund attributes (e.g., vintage, size, performance). Each row in the table reports the coefficients and standard errors from two separate regressions, one for the educational ties (Column (1)) and one for the MBA ties compared to other types of academic degrees (Column (2)). Our results do not seem to be driven by the selection strategy as the influence of ties remains intact.

Table 9 about here: Robustness of sample selection

In particular, we show that the effect persists when analyzing the competition among funds considering only investments that took place in Europe and North America, respectively. Results confirm the value of educational ties for both regional markets individually. We also differentiate among deal categories, where we find strong evidence for management buyouts/-ins and secondary buyouts. On the contrary, there is no effect on going private transactions where the need for identification and information asymmetry is of less importance compared to private companies. These results seem intuitive given a higher personal relevance for the management team in the former, whereas the latter is more transparent given the listing of the company. In a secondary buyout, one fund sells its portfolio company to another fund (Degeorge et al. (2016)). In the event the CEO of the portfolio company and a partner of the acquiring fund share the same alma mater, the deal likelihood increases. This may indicate that the fund manager and/or CEO reaches out to the network partner in order to facilitate the transaction. Interestingly, it appears that the CEO has an active role in selecting its new owner, whereas normally the fund would be expected to be in the driving seat.

With regard to fund attributes, we investigate pre-2001 and post-2000 vintage years yet find the effect to persist during both time periods. In recent years performance persistence has been reported to be lower than in earlier periods due to a maturing industry as well as the movement of individuals and knowledge between the investors (Braun et al. (2016)). The results also do not seem to be driven by U.S. funds or first time funds as both sub-samples reveal consistent findings. This also shows that we do not find a pure U.S. effect. Lastly, we split the fund sample between large and small funds as well as high and low performers (in terms of IRR and TVPI) to increase confidence in the general interpretation of our results. While this information is not available upfront when the deal decision is made, it allows us to give an indication whether funds tend to win deals by over-paying (and subsequently have low return measures). However, the educational and MBA ties remain significant in all specifications.[29]

5 Educational ties and performance

Having established that educational networks have a significant influence on success in winning deals, in this section, we investigate the relevance of our results for investors by investigating whether the performance of deals sourced from educational networks is better, or worse, than other deals.

On the one hand, networks could be harmful to the vendor if fund partners receive a financial favor from the CEO by lowering the price and increasing returns. However, this is unlikely since the board of directors of the target firm has to approve the deal. They in turn are liable to shareholders and hence will ensure a competitive price. On the other hand, partners could be blinded by the existing relationship to the CEO and overpay. Such a conflict of interest is also unlikely since they are incentivized via carried interest structures. Finally, the deal sourcing channel may not impact deal-level performance at all due to (i) the bargaining power of the vendor, which ensures market prices even when

---

[29]In unreported regressions, we confirm that also interaction terms on performance are not significant.

selling to a network-related party, and (ii) the primary relevance of other value-adding pillars for returns, i.e., leveraging, multiple expansion, and operational levers, which only take place after deal closing. Only the multiple expansion would be impacted by a lower entry valuation and price.

Univariate evidence suggests that performance is not statistically different for deals with and without a tie (average IRR of 18.9% versus 19.7%, TVPI of 3.03x versus 2.98x). While both sub-samples have slightly higher ratios of educational ties (18.9% and 19.1%), we also confirm that the findings on the impact of educational ties to win the deal hold in the subsamples (in unreported regressions based on the specifications from Table 8). In addition, we use a Heckman selection model to reduce a potential bias from the sampling approach. While performance may only be reported for well-performing deals in commercial databases, data from the investor is conditional on a particular investment strategy. The selection equation contains the same independent variables, except for the educational tie and, in addition, fixed effects for deal year, geographic region, and industry sector. We estimate the impact on performance from OLS on the following cross-sectional specification

$$Performance_j = \alpha + \beta\, Educational\ Tie_j + \delta\, Experience_j + \qquad (4)$$
$$\gamma\, Fund_j + \xi\, Investment_j + \lambda\, Year_j + \varepsilon_j\ .$$

Each observation represents one deal and the dependent variable $Performance_j$ is the IRR and the TVPI multiple, respectively. The variable of interest is once more the $Educational\ Tie_i$. Control variables are identical to previous specifications with the addition of two investment related variables, namely the holding period and the prevailing market return. The former measures time between entry and exit and the latter is a total return index over the lifetime of the investment.[30] Finally, we add deal year fixed effects to account for performance differences related to the deal origination period.

---

[30] For North American deals, we use the MSCI North America, for European deals the MSCI Europe, and for the remaining investments the MSCI World (all retrieved from Thomson Reuters in USD).

First empirical evidence on the impact of network structures on deal-level returns is given in Table 10. Our findings do not show a significant effect for the educational ties supporting the argument that networks are only useful to close a transaction but neutral with regard to performance. Controlling for the length of the holding period and the market return during the former shows negative and positive evidence, respectively. Due to the time sensitivity of investments, the negative (positive) impact of holding period (market return) is not surprising as private equity exits are highly driven by the overall economic environment. This complements recent investigations on the drivers of deal level performance (e.g., Achleitner et al. (2010), Acharya et al. (2013), and Braun et al. (2016)). While our results suggest that educational ties do not matter for investment performance, the analysis is limited by the sparse availability of performance data. Ideally, one would test the effect with a much larger sample and also integrate entry-level valuations as well as controls for post-deal performance, e.g., through the use of detailed cash-flow data, into the analysis. However, such data is not available to us and thus we leave a final judgment on performance open to future research.

Table 10 about here: Educational ties and subsequent investment performance

6   Concluding remarks

We build on the literature on the relevance of social ties using a novel data set based on the profiles of private equity fund managers and their target firm's management. Our analysis reveals that educational networks matter for the investment choice of buyout funds. During their competitive sourcing process, the existence of such ties eases identification and access to potential acquisition targets. This confirms earlier notions in the literature that personal and professional networks are an important channel for investors to identify target firms. It also stresses the general importance of social ties to overcome organizational boundaries

and, especially, confirms the role of weak ties ("acquaintances") for senior managers documented in the sociological literature.

In addition, we find that the impact of an educational tie is higher when it gives (more) exclusivity to the acquiring fund relative to the degree of competition in the market. As academic degrees of senior managers in the private equity industry are concentrated in a small set of schools, the existence of educational ties is an important differentiating factor. Furthermore, we show that educational ties can help bridge geographic distances between the investor and the target company. Geographic concentration in the investment portfolios of fund managers is a widely-observed characteristic that spans multiple asset classes. Our findings suggest that social ties can help to overcome localness, expand the manager's networks, and open additional investment opportunities to them. However, the evidence also suggests that the deal sourcing channel is not sufficient to predict post-deal performance.

References

Acharya, V. V., Gottschalg, O. F., Hahn, M. and Kehoe, C. (2013). Corporate Governance and Value Creation: Evidence from Private Equity. *Review of Financial Studies*, *26*(2), 368–402.

Achleitner, A.-K., Braun, R., Engel, N., Figge, C. and Tappeiner, F. (2010). Value Creation Drivers in Private Equity Buyouts: Empirical Evidence from Europe. *The Journal of Private Equity*, *13*(2), 17–27.

Allen, F. and Babus, A. (2009). Networks in Finance. In *The network challenge: Strategy, profit, and risk in an interlinked world* (Chap. 21, pp. 367–382). Wharton School Publishing.

Baruch, Y. and Peiperl, M. (2000). The impact of an MBA on graduate careers. *Human Resource Management Journal*, *10*(2), 69–90.

Bengtsson, O. and Hsu, D. H. (2015). Ethnic matching in the U.S. venture capital market. *Journal of Business Venturing*, *30*(2), 338–354.

Braun, R., Jenkinson, T. and Stoff, I. (2016). How persistent is private equity performance? Evidence from deal-level data. *Journal of Financial Economics*, *123*(2), 273–291.

Brown, G. W., Harris, R. S., Jenkinson, T., Kaplan, S. N. and Robinson, D. (2015). What Do Different Commercial Data Sets Tell Us About Private Equity Performance? Working Paper.

Brown, R., Gao, N., Lee, E. and Stathopoulos, K. (2012). What Are Friends for? CEO Networks, Pay and Corporate Governance. In *Corporate governance* (pp. 287–307). Springer-Verlag Berlin Heidelberg.

Butler, A. W. and Gurun, U. G. (2012). Educational networks, mutual fund voting patterns, and CEO compensation. *Review of Financial Studies*, *25*(8), 2533–2562.

Cai, Y., Gantchev, N. and Sevilir, M. (2016). Business School Networks and VC-backed Startups. Working Paper.

Cai, Y. and Sevilir, M. (2012). Board connections and M&A transactions. *Journal of Financial Economics*, *103*(2), 327–349.

Cai, Y., Sevilir, M. and Tian, X. (2013). Do Entrepreneurs Make Good VCs? Working Paper, AFA 2013 San Diego Meetings Paper.

Chen, H., Gompers, P., Kovner, A. and Lerner, J. (2010). Buy local? The geography of venture capital. *Journal of Urban Economics*, *67*(1), 90–102.

Cohen, L., Frazzini, A. and Malloy, C. (2008). The Small World of Investing: Board Connections and Mutual Fund Returns. *Journal of Political Economy*, *116*(5), 951–979.

Cohen, L., Frazzini, A. and Malloy, C. (2010). Sell-side school ties. *Journal of Finance*, *65*(4), 1409–1437.

Cohen, L. and Malloy, C. J. (2010). The power of Alumni Networks. *Harvard Business Review*, *88*(10), 34.

Cumming, D. and Dai, N. (2010). Local bias in venture capital investments. *Journal of Empirical Finance*, *17*(3), 362–380.

Degeorge, F., Martin, J. and Phalippou, L. (2016). On Secondary Buyouts. *Journal of Financial Economics*, *120*(1), 124–145.

Dimov, D. and Shepherd, D. A. (2005). Human capital theory and venture capital firms: Exploring "home runs" and "strike outs". *Journal of Business Venturing*, *20*(1), 1–21.

Engelberg, J., Gao, P. and Parsons, C. A. (2012). Friends with money. *Journal of Financial Economics*, *103*(1), 169–188.

Engelberg, J., Gao, P. and Parsons, C. A. (2013). The price of a CEO's rolodex. *Review of Financial Studies*, *26*(1), 79–114.

Fenn, G. W., Liang, N. and Prowse, S. (1997). The Private Equity Market: An Overview. *Financial Markets, Institutions and Instruments*, *6*(4), 1–106.

Fracassi, C. and Tate, G. (2012). External networking and internal firm governance. *Journal of Finance*, *67*(1), 153–194.

Gompers, P. A., Kaplan, S. N. and Mukharlyamov, V. (2016a). What Do Private Equity Firms Say They Do? *Journal of Financial Economics*, *121*(3), 449–476.

Gompers, P. A., Mukharlyamov, V. and Xuan, Y. (2016b). The Cost of Friendship. *Journal of Financial Economics*, *119*(3), 626–644.

Gompers, P. A. and Xuan, Y. (2009). Bridge Building in Venture Capital-Backed Acquisitions. Working Paper.

Gottesman, A. A. and Morey, M. R. (2006a). Does a better education make for better managers? An empirical examination of CEO educational quality and firm performance. Working Paper.

Gottesman, A. A. and Morey, M. R. (2006b). Manager education and mutual fund performance. *Journal of Empirical Finance*, *13*(2), 145–182.

Granovetter, M. S. (1973). The Strength of Weak Ties. *American Journal of Sociology*, *78*(6), 1360–1380.

Granovetter, M. S. (1983). The Strength of Weak Ties: A Network Theory Revisited. *Sociological Theory*, *1*, 201–233.

Granovetter, M. S. (2005). The impact of social structure on economic outcomes. *The Journal of Economic Perspectives*, *19*(1), 33–50.

Hall, S. (2011). Educational ties, social capital and the translocal (re)production of MBA alumni networks. *Global Networks*, *11*(1), 118–138.

Harris, R. S., Jenkinson, T. and Kaplan, S. N. (2016). How Do Private Equity Investments Perform Compared to Public Equity? *Journal of Investment Management*, *14*(3), 14–37.

Harris, R. S., Jenkinson, T., Kaplan, S. N. and Stucke, R. (2014). Has persistence persisted in private equity? Evidence from buyout and venture capital funds. Working Paper.

Hochberg, Y. V., Lindsey, L. A. and Westerfield, M. M. (2015). Resource accumulation through economic ties: Evidence from venture capital. *Journal of Financial Economics*, *118*(2), 245–267.

Hochberg, Y. V., Ljungqvist, A. and Lu, Y. (2007). Whom You Know Matters: Venture Capital Networks and Investment Performance. *Journal of Finance*, *62*(1), 251–301.

Hochberg, Y. V., Ljungqvist, A. and Lu, Y. (2010). Networking as a barrier to entry and the competitive supply of venture capital. *Journal of Finance*, *65*(3), 829–859.

Ishii, J. and Xuan, Y. (2014). Acquirer-target social ties and merger outcomes. *Journal of Financial Economics*, *112*(3), 344–363.

Jääskeläinen, M. and Maula, M. (2014). Do networks of financial intermediaries help reduce local bias? Evidence from cross-border venture capital exits. *Journal of Business Venturing*, *29*(5), 704–721.

Kirchmaier, T. and Stathopoulos, K. (2008). From fiction to fact: the impact of CEO social networks. Working Paper, No. 537, Manchester Business School.

Kuhnen, C. M. (2009). Business Networks, Corporate Governance, and Contracting in the Mutual Fund Industry. *Journal of Finance*, *64*(5), 2185–2220.

Liu, Y. (2014). Outside options and CEO turnover: The network effect. *Journal of Corporate Finance*, *28*, 201–217.

Ljungqvist, A., Richardson, M. and Wolfenzon, D. (2009). The Investment Behavior of Buyout Funds: Theory and Evidence. Working Paper.

Metrick, A. and Yasuda, A. (2010). The Economics of Private Equity Funds. *Review of Financial Studies*, *23*(6), 2303–2341.

Metrick, A. and Yasuda, A. (2011). Venture Capital and Other Private Equity: A Survey. *European Financial Management*, *17*(4), 619–654.

Morkoetter, S. and Wetzer, T. (2015). Private Equity Performance in M&A Transactions: Empirical Evidence from the Buy and Sell Side. Working Paper, No. 2015/22, Swiss Institute of Banking and Finance.

Patzelt, H., zu Knyphausen-Aufseß, D. and Fischer, H. T. (2009). Upper echelons and portfolio strategies of venture capital firms. *Journal of Business Venturing*, *24*(6), 558–572.

Phalippou, L. (2007). Investing in Private Equity Funds: A Survey. The Research Foundation of CFA Institute.

Renneboog, L. and Zhao, Y. (2014). Director networks and takeovers. *Journal of Corporate Finance*, *28*, 218–234.

Rousseau, P. L. and Stroup, C. (2015). Director Histories and the Pattern of Acquisitions. *Journal of Financial and Quantitative Analysis*, *50*(4), 671–698.

Siming, L. (2014). Your former employees matter: Private equity firms and their financial advisors. *Review of Finance*, *18*(1), 109–146.

Sørensen, M. (2007). How Smart Is Smart Money? A Two Sided Matching Model of Venture Capital. *Journal of Finance*, *62*(6), 2725–2762.

Sorensen, O. and Stuart, T. E. (2001). Syndication Networks and the Spatial Distribution of Venture Capital Investments. *American Journal of Sociology*, *106*(6), 1546–1588.

Sorensen, O. and Stuart, T. E. (2008). Bringing the Context Back in: Settings and the Search for Syndicate Partners in Venture Capital Investment Networks. *Administrative Science Quarterly*, *53*(2), 266–294.

Stuart, T. E. and Yim, S. (2010). Board interlocks and the propensity to be targeted in private equity transactions. *Journal of Financial Economics*, *97*(1), 174–189.

Sunesson, D. T. (2009). Alma Mater Matters: The Value of School Ties in the Venture Capital Industry. Working Paper.

Teten, D. and Farmer, C. (2010). Where Are the Deals? Private Equity and Venture Capital Funds' Best Practices in Sourcing New Investments. *The Journal of Private Equity*, *14*(1), 32–53.

Wegener, B. (1991). Job Mobility and Social Ties: Social Resources, Prior Job, and Status Attainment. *American Sociological Review*, *56*(1), 60–71.

Wu, B. ((2011). Shall We Dance? Syndication, Social Network, and Performance: Evidence from Leveraged Buyout Investments. Working Paper, Yonsei University.

Zarutskie, R. (2010). The role of top management team human capital in venture capital markets: Evidence from first-time funds. *Journal of Business Venturing*, *25*(1), 155–172.

Tables

Table 1: Breakdown of buyout fund sample by vintage year

The table shows for each vintage year descriptive statistics on the buyout funds available in the PitchBook database (up to vintage year 2010). The sample is restricted to funds for which the management team can be identified, size, sequence, and location is non-missing, and includes only closed, fully invested and liquidated funds. *Fund count* reports a total count of funds and on the ones for which an IRR and a TVPI multiple is available, respectively. *Fund profile* lists the average number of investments and partners tagged to the fund as well as the average and median size. The count of investments includes all types of investments (incl. venture and add-on transactions) and is not restricted to the set of buyout and growth transactions used in the empirical part of the study. *Fund performance* depicts the average and median IRR and TVPI multiple for each vintage year. Performance and capital variables are winsorized at the 1% level. A split between U.S. based funds and international funds is provided at the bottom.

Vintage Year	Fund Count			Fund Profile				Fund Performance			
	Total Funds	w/ IRR	w/ TVPI	Avg Partn.	Avg Invest	Avg Size	Med Size	Avg IRR	Med IRR	Avg TVPI	Med TVPI
	#	#	#	#	#	$m	$m	%	%	x	x
1984	2	0	0	1.0	3.5	48	48				
1985	1	0	0	1.0	1.0	16	16				
1986	4	0	0	1.8	4.2	76	82				
1987	8	7	4	1.2	9.1	1126	112	20.1	18.9	2.41	2.49
1989	6	4	3	2.2	6.3	603	242	22.4	20.0	3.05	2.38
1990	4	0	0	2.0	7.8	126	108				
1991	4	3	3	1.0	5.8	205	196	22.6	33.8	2.40	2.67
1992	7	4	3	1.4	5.4	347	114	9.9	24.6	1.77	1.39
1993	12	9	7	1.7	10.8	567	332	25.5	25.6	2.45	2.12
1994	16	7	7	1.8	10.8	381	162	23.1	24.0	2.99	3.00
1995	22	8	8	2.2	9.7	369	208	26.6	26.6	2.45	2.37
1996	36	19	16	1.9	12.1	486	240	11.7	10.4	1.53	1.30
1997	54	22	27	1.9	9.4	687	278	7.8	9.1	1.44	1.40
1998	76	42	36	2.5	13.6	569	286	8.2	8.8	1.61	1.46
1999	85	45	44	2.6	14.0	593	305	13.4	13.1	1.72	1.69
2000	117	61	62	3.0	18.4	893	327	14.7	12.7	1.85	1.78
2001	74	40	40	3.8	17.7	739	266	24.5	24.3	2.15	2.13
2002	78	30	32	3.0	14.6	612	208	19.2	17.1	1.79	1.74
2003	70	34	39	3.8	17.8	799	300	21.2	17.8	1.85	1.71
2004	98	40	43	2.8	15.2	589	297	14.7	12.4	1.86	1.72
2005	152	72	90	4.3	20.0	953	362	9.4	9.1	1.51	1.44
2006	211	99	121	4.1	17.2	1044	421	8.9	8.9	1.49	1.50
2007	227	108	129	4.2	18.4	920	327	11.5	10.5	1.50	1.46
2008	188	81	102	4.0	16.1	937	325	11.6	12.0	1.42	1.44
2009	104	47	57	3.8	15.8	865	300	15.8	14.3	1.47	1.42
2010	101	44	62	4.1	14.3	488	333	9.6	9.5	1.35	1.27
Total	1757	826	935	3.5	16.1	794	316	13.3	12.0	1.62	1.54
U.S.	1115	608	666	3.6	17.3	791	319	13.5	12.5	1.63	1.58
Other	642	218	269	3.4	13.9	800	313	12.6	10.4	1.60	1.44

Table 2: Characteristics of the investment sample

The table presents descriptive statistics on buyout and growth transactions where a buyout fund invests for the first time in the target company. Add-on transactions and investments after 2010 are excluded. Educational background of at least one partner of the investing fund and the target company CEO must be available to be included. Transactions without a date or missing information on the company's location and industry as well as funds with missing location or size are excluded. In addition, only deals where the investment took place within the five year period following the fund's vintage year are considered for comparability with the counterfactual investment sample. *Headquarter region*, *industry sector*, *investment year*, and *transaction type* are based on classifications in the database. *Geographic distance* is the distance between the firm's headquarters and the closest partner of the acquiring fund.

	N	%
Total	3051	
Panel A: Headquarter Region		
North America	2065	67.68
Western Europe	551	18.06
Northern Europe	187	6.13
Eastern/Southern Europe	130	4.26
Other	118	3.87
Panel B: Geographic Distance		
Distance ≤ 100 km	730	23.93
Distance 100-500 km	633	20.75
Distance 500-1000 km	458	15.01
Distance 1000-2500 km	709	23.24
Distance ≥ 2500 km	521	17.08
Panel C: Primary Industry Sector		
Business Products and Services (B2B)	1000	32.78
Consumer Products and Services (B2C)	730	23.93
Energy	119	3.90
Financial Services	259	8.49
Healthcare	352	11.54
Information Technology	461	15.11
Materials and Resources	130	4.26
Panel D: Transaction Type		
Buyout/LBO	916	30.02
Divestiture/Carveout	269	8.82
Management Buyout/-in	363	11.90
Growth/Expansion	578	18.94
Going Private	208	6.82
Recapitalization/Acquisition Financing	320	10.49
Secondary Buyout	397	13.01
Panel E: Investment Year		
1987 - 1994	27	0.88
1995 - 2000	340	11.14
2001 - 2002	201	6.59
2003 - 2004	387	12.68
2005 - 2006	664	21.76
2007 - 2008	777	25.47
2009 - 2010	655	21.47

Table 3: Degree institutions of fund partners and CEOs

The table presents the most frequent academic institutions from which fund partners and target company CEOs have received their academic degrees. Individuals can be represented with multiple degrees but are counted only once even in case a partner or CEO is involved in several funds and transactions, respectively. *Fund Partners* represent the individuals that are involved in the management of a buyout fund up to vintage year 2010 (refer to Table 1). *Target Firm CEO* refers to the individual that was in this role at the time of the deal where one of the buyout funds invested in the company for the first time. This includes only buyout and growth transactions up to 2010 and excludes add-on transactions. The table only lists institution where one of the two groups is represented with at least 50 degrees.

	Academic Institution	Fund Partners				Target Firm CEO			
		N	%	MBA	%	N	%	MBA	%
1	Harvard University	877	12.29	593	28.59	166	4.10	94	12.62
2	University of Pennsylvania	487	6.82	221	10.66	63	1.56	27	3.62
3	Stanford University	306	4.29	163	7.86	63	1.56	18	2.42
4	Columbia University	177	2.48	114	5.50	40	0.99	13	1.74
5	Northwestern University	167	2.34	120	5.79	57	1.41	34	4.56
6	University of Chicago	155	2.17	130	6.27	44	1.09	33	4.43
7	Dartmouth College	122	1.71	45	2.17	37	0.91	12	1.61
8	Yale University	121	1.70	15	0.72	27	0.67	1	0.13
9	University of Virginia	107	1.50	27	1.30	22	0.54	7	0.94
10	Cambridge University	97	1.36	1	0.05	16	0.40	0	0.00
11	Princeton University	97	1.36	1	0.05	17	0.42	0	0.00
12	University of Oxford	95	1.33	1	0.05	25	0.62	1	0.13
13	New York University	89	1.25	44	2.12	33	0.82	14	1.88
14	INSEAD	88	1.23	79	3.81	35	0.87	17	2.28
15	University of Michigan	82	1.15	18	0.87	34	0.84	8	1.07
16	Cornell University	81	1.13	15	0.72	34	0.84	8	1.07
17	ParisTech	75	1.05	5	0.24	41	1.01	7	0.94
18	Duke University	74	1.04	17	0.82	21	0.52	6	0.81
19	University of Texas	72	1.01	15	0.72	44	1.09	11	1.48
20	Georgetown University	69	0.97	9	0.43	18	0.45	1	0.13
21	MIT	66	0.92	16	0.77	16	0.40	1	0.13
22	UC Berkeley	63	0.88	10	0.48	37	0.91	7	0.94
23	University of Notre Dame	59	0.83	2	0.10	15	0.37	2	0.27
24	Stockholm School of Econ.	58	0.81	1	0.05	12	0.30	1	0.13
25	Brown University	53	0.74	0	0.00	20	0.49	0	0.00
26	UC Los Angeles	53	0.74	28	1.35	30	0.74	10	1.34
27	University of Illinois	51	0.71	2	0.10	33	0.82	3	0.40
	Other	3297	46.19	382	18.42	3044	75.27	409	54.90
	No of Degrees	7138	100	2074	100	4044	100	745	100
	No of Individuals	3939				2599			

Table 4: Investment generation and educational ties

The table shows the existence of an educational tie and an MBA tie, respectively. *Actual investments* are the buyout and growth transactions from buyout funds up to vintage year 2010 described in Table 2. *Counterfactual investments* represent potential transactions from buyout funds generated in the counterfactual approach that could have invested in the same company as well. To be included for a specific transaction, they are in their investment period at the time of the deal and have invested at least once in the same geographic region and industry sector. We refer to Section 2.5 for more details on the matching procedure. An *educational tie* exists if at least one of the fund partners has obtained a degree from the same academic institution as the CEO of the target company at the time of the transaction. An *MBA tie* exists if the fund partner and the CEO graduated from the same business school with an MBA degree.

Panel A: Educational Ties

| Investment | Educational Tie | | Total |
	No	Yes	
Actual	2598	453	3051
	85.2%	14.9%	100%
Counterfactual	694402	55240	749642
	92.6%	7.4%	100%
Total	697000	55693	752693
	92.6%	7.4%	100%

Panel B: MBA Ties

| Investment | MBA Tie | | Total |
	No	Yes	
Actual	2921	130	3051
	95.7%	4.3%	100%
Counterfactual	731316	18326	749642
	97.6%	2.4%	100%
Total	734237	18456	752693
	97.5%	2.5%	100%

Table 5: Educational ties and the odds of winning a deal

The table shows the results for cross-sectional regressions of a binary investment indicator on the existence of educational ties according to Equation (1). The response variable equals one for actual and zero for counterfactual investments. The latter include for each transaction the buyout funds that are in investment period at the time of the deal and that have invested at least once in the same geographic region and industry sector. *Educational ties* are set to one when at least one of the fund partners graduated from the same academic institution as the CEO of the target firm and zero otherwise. *Same type* refers to an overlap in the academic degree (undergraduate, graduate, MBA, etc.) and *Same time* to a three year window relative to the graduation year. An *MBA tie* exists if the partner and the CEO graduated from the same business school, while *Non-MBA ties* are the residual degrees. *Geographic distance* is measured between the headquarters of the target company and the nearest investment office, where a partner is based, and transformed to its logarithmic base. *Consulting*, *Accounting*, and *Banking* measure the share of partners with prior work experience in the respective industry. *Fund size* is the natural logarithm of the fund's committed capital and the *sequence number* is the natural logarithm on the number of funds the respective investor has already raised including the current one. *First fund* and *U.S. fund* are indicator variables that equal to one if the fund is the first fund for the investor and if the fund is based in the U.S., respectively. Each presented model includes vintage fixed effects on the investment's year, geographic region, and industry sector. Coefficients are estimated from a logit model and standard errors are clustered on investor level (in brackets).

	Dependent variable: Investment Indicator				
	(1)	(2)	(3)	(4)	(5)
Educational tie	0.583***				
	(0.060)				
Educational tie (same type)		0.534***			
		(0.063)			
Educational tie (same time)			1.003***		
			(0.144)		
Educational tie (type, time)				0.959***	
				(0.154)	
MBA tie					0.539***
					(0.092)
Non-MBA tie					0.601***
					(0.068)
Geo. Distance (log)	−0.252***	−0.255***	−0.260***	−0.260***	−0.252***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Accounting (%)	−0.066	−0.065	−0.066	−0.066	−0.067
	(0.148)	(0.147)	(0.146)	(0.146)	(0.148)
Banking (%)	−0.006	−0.008	−0.010	−0.010	−0.006
	(0.067)	(0.067)	(0.067)	(0.067)	(0.067)
Consulting (%)	0.164*	0.169*	0.178**	0.179**	0.165*
	(0.089)	(0.089)	(0.090)	(0.090)	(0.089)
Fund Size (log)	0.070***	0.071***	0.075***	0.076***	0.070***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Fund Seq. (log)	−0.103**	−0.104**	−0.097**	−0.097**	−0.103**
	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
First Fund (d)	−0.205***	−0.205***	−0.202***	−0.203***	−0.205***
	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)
U.S. Fund (d)	−0.089	−0.091	−0.079	−0.080	−0.089
	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)
F.E. Deal Year	Yes	Yes	Yes	Yes	Yes
F.E. Region	Yes	Yes	Yes	Yes	Yes
F.E. Industry	Yes	Yes	Yes	Yes	Yes
Observations	752,693	752,693	752,693	752,693	752,693
Pseudo R^2	0.066	0.065	0.065	0.064	0.066

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

Table 6: Educational ties and the relevance of exclusivity

The table extends the cross-sectional regressions of a binary investment indicator on the existence of educational ties from Table 5. A *redundant tie* indicates that more than one educational tie between the fund partners and the target firm CEO exists, while *team size* counts the partners in the fund's mangement team. *Top-X* indicates the university's position in academic rankings (refer to Section 3.2 for more details). *Panel A* shows evidence related to *binary educational ties*, which are set to one when at least one of the fund partners graduated from the same academic institution as the CEO of the target company and to zero otherwise. *Panel B* normalizes the tie variables with the number of competing funds that have the same tie (refer to Equation (2)). We refer to Table 5 for the list of control variables. Each model includes vintage fixed effects on the investment's year, geographic region, and industry sector. Coefficients are estimated from a logit model and standard errors are clustered on investor level (in brackets).

	Dependent variable: Investment Indicator			
	(1)	(2)	(3)	(4)
Panel A: Binary educational tie				
Educational tie	0.583***	0.437***	0.693***	
	(0.060)	(0.073)	(0.081)	
Redundant tie		0.388***		
		(0.099)		
Team size			0.016***	
			(0.005)	
Team size * Educational tie			−0.018**	
			(0.009)	
Educational tie (top-10)				0.270***
				(0.081)
Educational tie (top-11-30)				0.433***
				(0.114)
Educational tie (top-31-100)				0.826***
				(0.116)
Educational tie (above 100)				1.229***
				(0.106)
Panel B: Scaled educational tie (by number of funds with similar tie)				
Educational tie	2.340***	2.082***	2.769***	
	(0.194)	(0.231)	(0.265)	
Redundant tie		2.573***		
		(0.898)		
Team size			0.015***	
			(0.004)	
Team size * Educational tie			−0.080***	
			(0.028)	
Educational tie (top 10)				−0.007
				(0.943)
Educational tie (top-11-30)				2.233***
				(0.637)
Educational tie (top-31-100)				2.178***
				(0.431)
Educational tie (above 100)				2.438***
				(0.216)
Control variables	Yes	Yes	Yes	Yes
F.E. Deal Year	Yes	Yes	Yes	Yes
F.E. Region	Yes	Yes	Yes	Yes
F.E. Industry	Yes	Yes	Yes	Yes
Observations	752,693	752,693	752,693	752,693
Note:				**p<0.1; **p<0.05; ***p<0.01*

Table 7: Educational ties and geographic distance

The table extends the cross-sectional regressions of a binary investment indicator on the existence of educational ties from Table 5. *Educational ties* are set to one when at least one of the fund partners graduated from the same academic institution as the CEO of the target company and to zero otherwise. *Geographic distance* is measured between the headquarters of the target company and the nearest investment office where a partner is based. *U.S fund* indicates that the fund is based in the United States whereas *Europe* and *North America (NA)* deals refer to the target firm headquarters. We refer to Table 5 for the list of control variables. Each model includes vintage fixed effects on the investment's year, geographic region, and industry sector. Coefficients are estimated from a logit model and standard errors are clustered on investor level (in brackets).

	Dependent variable: Investment Indicator				
	(1)	(2)	(3)	(4)	(5)
Educational tie	0.297***	0.450***	0.544***	0.680***	0.611***
	(0.101)	(0.090)	(0.081)	(0.074)	(0.060)
∗ Geo. Distance (log)	0.055***				
	(0.017)				
∗ Geo. Distance >100 km (d)		0.272**			
		(0.111)			
∗ Geo. Distance >500 km (d)			0.212**		
			(0.107)		
∗ Geo. Distance >1,000 km (d)				0.038	
				(0.106)	
∗ U.S. fund / Europe deal (d)					0.575**
					(0.271)
∗ Non-U.S. fund / NA deal (d)					0.098
					(0.383)
Geo. Distance (log)	−0.262***				
	(0.011)				
Geo. Distance >100 km (d)		−1.403***			
		(0.071)			
Geo. Distance >500 km (d)			−1.116***		
			(0.061)		
Geo. Distance >1,000 km (d)				−0.919***	
				(0.053)	
U.S. fund / Europe deal (d)					−0.902***
					(0.105)
Non-U.S. fund / NA deal (d)					−1.162***
					(0.131)
Control variables	Yes	Yes	Yes	Yes	Yes
F.E. Deal Year	Yes	Yes	Yes	Yes	Yes
F.E. Region	Yes	Yes	Yes	Yes	No
F.E. Industry	Yes	Yes	Yes	Yes	Yes
Observations	752,693	752,693	752,693	752,693	752,693

Note: <div align="right">*p<0.1; **p<0.05; ***p<0.01</div>

Table 8: Robustness of model specification

The table shows different variations of the regression setting of a binary investment indicator on the existence of educational ties according to Equation (1). The response variable equals one for actual and zero for counterfactual investments. The latter include for each transaction the buyout funds that are in investment period at the time of the deal and that have invested at least once in the same geographic region and industry sector. Models 1 to 4 show results based on the full sample, while Models 5 to 8 use a one-for-one random draw on the counterfactual pairs. An *educational tie* exists if at least one of the partners graduated from the same university as the CEO of the target company. An *MBA tie* exists if both have obtained an MBA degree from the same business school. *Non-MBA ties* are the residual degrees. We refer to Table 5 for the definition of control variables. The table shows coefficient estimates and standard errors (in brackets). Models 1 and 5 show results from a logit model, the remaining models use Ordinary Least Squares (OLS) regressions with varying sets of fixed effects. Standard errors in the logistic model are clustered on the investor level, while the OLS models use two-way cluster-robust standard errors on investors and companies.

	Dependent variable: Investment Indicator							
	Full Sample				Random draw			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Logit	*OLS*	*OLS*	*OLS*	*Logit*	*OLS*	*OLS*	*OLS*
Panel A: Academic degrees								
Educational tie	0.583***	0.003***	0.005***	0.003***	0.677***	0.142***	0.267***	0.147***
	(0.060)	(0.0004)	(0.001)	(0.0004)	(0.096)	(0.017)	(0.047)	(0.021)
Geo. Distance	−0.252***	−0.002***	−0.002***	−0.002***	−0.331***	−0.068***	−0.123***	−0.064***
	(0.011)	(0.0001)	(0.0001)	(0.0001)	(0.021)	(0.003)	(0.006)	(0.004)
Accounting (%)	−0.079	−0.0004	−0.001	−0.002	−0.315	−0.066	−0.118	−0.141
	(0.150)	(0.001)	(0.001)	(0.001)	(0.201)	(0.044)	(0.085)	(0.102)
Banking (%)	−0.007	−0.0001	−0.0001	−0.0001	−0.049	−0.011	−0.024	−0.046
	(0.067)	(0.0003)	(0.0003)	(0.001)	(0.095)	(0.021)	(0.044)	(0.046)
Consulting (%)	0.163*	0.001**	0.001**	0.001	0.124	0.028	0.054	0.023
	(0.089)	(0.0004)	(0.0004)	(0.001)	(0.129)	(0.029)	(0.060)	(0.055)
Fund Size (log)	0.070***	0.0003***	0.0003***	0.001***	0.130***	0.029***	0.051***	0.067***
	(0.022)	(0.0001)	(0.0001)	(0.0002)	(0.027)	(0.006)	(0.012)	(0.013)
Fund Seq. (log)	−0.103**	−0.0005**	−0.001***	0.003***	−0.106**	−0.023**	−0.042*	0.167***
	(0.041)	(0.0002)	(0.0002)	(0.001)	(0.049)	(0.011)	(0.023)	(0.039)
First Fund (d)	−0.205***	−0.001***	−0.001***	0.0004	−0.358***	−0.079***	−0.120***	−0.00003
	(0.065)	(0.0003)	(0.0003)	(0.001)	(0.092)	(0.021)	(0.044)	(0.037)
U.S. Fund (d)	−0.089	−0.001***	−0.001***	−0.001	−0.053	−0.011	−0.008	−0.088*
	(0.057)	(0.0002)	(0.0002)	(0.001)	(0.084)	(0.019)	(0.038)	(0.052)
F.E. Deal Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F.E. Region	Yes	Yes	n/a	Yes	Yes	Yes	n/a	Yes
F.E. Industry	Yes	Yes	n/a	Yes	Yes	Yes	n/a	Yes
F.E. Company	No	No	Yes	No	No	No	Yes	No
F.E. Investor	No	No	No	Yes	No	No	No	Yes
Observations	752,693	752,693	752,693	752,693	6,102	6,102	6,102	6,102
R²	0.066	0.005	0.007	0.009	0.151	0.109	0.197	0.255
Panel B: MBA versus other degrees								
MBA tie	0.539***	0.003***	0.004***	0.003***	0.606***	0.135***	0.325***	0.143***
	(0.092)	(0.001)	(0.001)	(0.001)	(0.146)	(0.027)	(0.089)	(0.033)
Non-MBA tie	0.601***	0.004***	0.005***	0.004***	0.723***	0.154***	0.277***	0.154***
	(0.068)	(0.001)	(0.001)	(0.001)	(0.116)	(0.021)	(0.052)	(0.024)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	752,693	752,693	752,693	752,693	6,102	6,102	6,102	6,102
R²	0.066	0.005	0.007	0.009	0.130	0.094	0.178	0.239

Note: R² for Logit models reports Nagelkerke's measure. *p<0.1; **p<0.05; ***p<0.01

Table 9: Robustness of sample selection

The table shows the results for cross-sectional regressions of a binary investment indicator on the existence of educational ties according to Equation (1) for various subsets of the deal data set. The dependent variable is an indicator that equals one for actual and zero for counterfactual investments. The latter include for each transaction the buyout funds that have been in investment period at the time of deal and that have invested at least once in the same geographic region and industry sector. Each cell represents a separate regression under the full model specification but only reports the coefficients for the educational ties and MBA ties, respectively. An *educational tie* exists if at least one of the partners graduated from the same academic institution as the CEO of the target company. An *MBA tie* exists if the fund partner and the CEO graduated from the same business school with an MBA. Control variables and fixed effects are used as in the original specifications (we refer to Table 5, Specifications (1) and (5), respectively). The table depicts coefficients estimated from a logit model and standard errors clustered on investors (in brackets).

	Dependent variable: *Investment Indicator*	
	Educational tie	MBA tie
Baseline model	0.583***	0.539***
	(0.060)	(0.092)
Deal characteristics		
Deals in North America	0.428***	0.477***
	(0.072)	(0.099)
Deals in Europe	0.872***	0.754***
	(0.111)	(0.256)
MBO/MBI deals	0.947***	0.385
	(0.163)	(0.480)
Secondary buyouts	0.770***	0.528**
	(0.144)	(0.255)
Public to Private	0.090	0.206
	(0.241)	(0.309)
Fund characteristics		
Post-2000 vintage	0.612***	0.556***
	(0.068)	(0.106)
Pre-2001 vintage	0.473***	0.488**
	(0.122)	(0.194)
U.S. based	0.444***	0.518***
	(0.071)	(0.099)
Non-U.S. based	0.782***	0.458*
	(0.109)	(0.257)
First timer	0.737***	0.845***
	(0.143)	(0.228)
Non-first timer	0.562***	0.484***
	(0.064)	(0.100)
Large fund†	0.581***	0.538***
	(0.065)	(0.099)
Small fund†	0.606***	0.519**
	(0.149)	(0.264)
High IRR†	0.509***	0.395***
	(0.097)	(0.150)
Low IRR†	0.582***	0.613***
	(0.090)	(0.151)
High TVPI†	0.536***	0.402***
	(0.091)	(0.136)
Low TVPI†	0.519***	0.680***
	(0.110)	(0.167)

† *Above/below median value based on all buyout funds where the respective metric is available.*

*p<0.1; **p<0.05; ***p<0.01

Table 10: Educational ties and subsequent investment performance

The table shows results for cross-sectional regressions of deal performance on educational ties according to Equation (4). The sample includes the subset of investments with performance data. The dependent variable represents the IRR and TVPI multiple of the investment, respectively. An *educational tie* exists if at least one of the fund partners graduated from the same academic institution as the CEO of the target company. *Holding period* describes the investment period for the respective fund whereas *market return* measures the equity market return for the same time frame in the region. We refer to Table 5 for the definition of control variables. The *Heckman model* shows the outcome equation. The selection equation contains the same set of independent variables, except for the educational tie, and, in addition, fixed effects for deal year, geographic region, and industry. The table depicts coefficients estimated with Ordinary Least Squares (OLS) and standard errors clustered on investor level (in brackets).

	*Dependent variable*							
	*Deal IRR*				*Deal TVPI*			
	OLS	*OLS*	*OLS*	*Heckman*	*OLS*	*OLS*	*OLS*	*Heckman*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Educational tie	0.018	0.001	0.040	−0.013	0.087	0.108	0.190	0.009
	(0.052)	(0.051)	(0.046)	(0.064)	(0.269)	(0.270)	(0.269)	(0.302)
Geo. Distance (log)		−0.007	−0.012	−0.014		−0.003	−0.013	−0.012
		(0.011)	(0.010)	(0.011)		(0.058)	(0.056)	(0.050)
Accounting (%)		−0.327**	−0.449***	−0.499***		−0.325	−0.557	−1.394
		(0.162)	(0.162)	(0.183)		(0.657)	(0.657)	(0.855)
Banking (%)		−0.020	−0.035	−0.108		−0.173	−0.242	−0.460
		(0.098)	(0.097)	(0.095)		(0.464)	(0.472)	(0.427)
Consulting (%)		−0.119	−0.026	−0.039		0.229	0.357	0.004
		(0.165)	(0.143)	(0.139)		(0.752)	(0.714)	(0.601)
Fund Size (log)		−0.021	0.004	−0.057		−0.415***	−0.336***	−0.840***
		(0.023)	(0.020)	(0.053)		(0.119)	(0.114)	(0.243)
Fund Seq. (log)		0.065**	0.015	0.036		0.078	−0.048	0.037
		(0.032)	(0.037)	(0.036)		(0.161)	(0.177)	(0.170)
First Fund (d)		0.210*	0.188	0.238**		−0.463	−0.551	−0.213
		(0.118)	(0.118)	(0.109)		(0.473)	(0.462)	(0.470)
U.S. Fund (d)		−0.007	0.006	0.030		0.445	0.493*	0.924**
		(0.047)	(0.049)	(0.077)		(0.294)	(0.293)	(0.369)
Holding Period (yrs)			−0.082***	−0.069***			−0.224***	−0.162***
			(0.013)	(0.009)			(0.045)	(0.043)
Market Return (%)			2.265***	2.237***			4.160**	4.567***
			(0.501)	(0.339)			(1.755)	(1.514)
F.E. Deal Year	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Observations	535	535	535	535	624	624	624	624
Adjusted R^2	0.128	0.127	0.292	0.201	0.052	0.069	0.113	0.078
Inverse Mills Ratio				−0.091				−1.510**

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