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How do Lead Financiers Select Their Partners in Buyout Syndicates? Empirical Results from Buyout Syndicates in Europe

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Relying on a unique dataset covering 366 buyout syndicates in Europe over the period 1999–2009, we empirically investigate the partnering decisions of lead financiers. We find that lead financiers select investors with whom they developed a prior relationship, either directly or indirectly. Also, lead financiers prefer partners with expertise in the target industry and partners with knowledge about target-country institutions, particularly when their own knowledge in these areas is limited. Finally, they favor investors with a similar level of cognition and status. We further show that these results are mainly driven by the risky buyouts in the sample. Overall, the above partnering choices are found to have genuine economic effects for the post-buyout performance of target firms, with expertise as regards the target industry and target-country institutions having the largest beneficial effect.

Keywords: buyout; economic behavior; partner selection; syndication; target performance

Introduction

The European buyout market has grown considerably over the last two decades, from €4 billion invested in 1992 to €94 billion in 2008. While deteriorating economic conditions led to a huge drop in buyout activity thereafter, investment levels started to pick up again as of the third quarter of 2009. As a result, the European buyout market fully caught up with its US counterpart over time (Kaplan and Strömberg, 2009). According to the European Venture Capital Association (EVCA), about 15% of recent buyouts in Europe were syndicated, namely, multiple investors jointly acquired an equity stake in the target firm. The latter deals correspond to 44% of the total amount invested, thereby indicating that syndication has become a non-trivial feature of the European buyout market. However, unlike the public-to-private transactions in the USA, buyout syndicates in Europe are usually not established through an auction procedure, known as *club deals*.[1] Rather, firms are sold through private negotiation with a buyout financier, who may decide to set up a syndicate and select one or more investors to join it (Meuleman *et al*., 2010). Those co-investors may then help to create more target-firm value, or even restrain the lead financier from investing in the target firm if their own due diligence of the target firm proved unsatisfactory (Sah and Stiglitz, 1986). Although the European buyout market has several unique features, which also allows testing ideas that could not be explored up till now, research on investor decisions and behavior in European buyout syndicates is still highly embryonic. A number of recent articles have examined the motives underlying the decision to syndicate buyouts in Europe (e.g., Meuleman *et al*., 2009b; Huyghebaert and Priem, 2014). While risk diversification turns out to be a highly influential force, syndicates are also set up when investors lack information and skills, and have an appetite for deal flow. In this paper, we now extend that prior research by studying the partnering choices of lead financiers in those buyout syndicates.

The main goal of our study is to investigate which investor characteristics lead financiers take into account when selecting investment companies to join the buyout syndicate. To address this research question, we rely on a number of non-mutually exclusive and highly complementary theories from the organizational sociology

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[1]In the USA, the importance of bidding consortiums in public-to-private transactions has been growing over time. In those club deals, two or more buyout financiers jointly submit a bid for a target firm. In contrast to the USA, club bidding rarely occurs in Europe (0.17% of deals in the population of European buyouts over our sample period, i.e. 1999–2009).

literature, which can help to explain how networks of relationships are formed and maintained through partnering choices. Specifically, we infer insights from Coleman's (1988) network closure theory, Burt's (1992) structural holes theory, and Lazarsfeld and Merton's (1954) homophily theory. Coleman's (1988) network closure theory claims that prior social relationships produce trust, which might subsequently constrain opportunistic behavior among investors. To limit moral-hazard problems in the buyout syndicate, lead financiers might thus prefer investment partners with whom they cooperated before. Burt's (1992) structural holes theory implies that lead financiers will invite investors capable of providing complementary information and management skills; this should be useful for the selection and the management of portfolio firms. Lazarsfeld and Merton's (1954) homophily theory contends that lead financiers favor partners similar to themselves, such as investors with a similar level of buyout experience ('cognitive similarity') and a similar position in the buyout network ('status similarity'). The reason is that homophily tends to reduce interorganizational conflicts, thereby adding to the syndicate's effectiveness. Arguably, although network closure theory, structural holes theory, and homophily theory all can contribute to our understanding of syndication networks, each theory by itself can offer only a partial explanation for lead financiers' partnering choices in buyout syndicates and may not even be supported empirically.

Next, we examine in more detail whether lead financiers use different decision rules in different contexts. For this purpose, we consider various measures capturing different aspects of target riskiness, given that risk diversification is a key rationale for the syndication of European buyouts (Meuleman *et al*., 2009b; Huyghebaert and Priem, 2014). Moreover, when target risk is substantial, we expect lead financiers to attach more importance to the proposed investor characteristics, as they could now be even more dependent on the assistance of their co-investors in target screening, monitoring, and value adding. Such a detailed analysis of the conditions that influence lead financiers' partnering choices could help to better understand how syndicates are structured so as to achieve their strategic objectives.

Finally, in order to analyze whether those partnering choices have genuine economic consequences for target firms, we relate investor experience and interrelationship variables to the change in target-firm profitability and growth after the buyout. Indeed, when a syndicate is structured so as to improve its functioning and effectiveness, this should ultimately be reflected in how the buyout transaction affects target-firm performance. We rely on a unique sample of 366 syndicated buyouts in Europe to conduct the above analyses.

Our study provides an important contribution to the literature on partner-selection decisions in a private-equity context, as empirical research on this topic is still rather limited. Up till now, only a handful of studies have examined partnering behavior, mostly in the context of venture capital (VC) syndicates (e.g., Lockett and Wright, 1999; Kogut *et al*., 2007; Sorenson and Stuart, 2008; Keil *et al*., 2010). Nonetheless, as buyouts entail a once-for-all structuring of the deal, we argue that partner-selection decisions can be examined more accurately for buyouts than for VC transactions. Indeed, VC generally involves stage financing, with later financing rounds being initiated after pre-specified milestones were achieved. The composition of the VC syndicate and even the identity of the lead financier in a VC syndicate could then change across the subsequent financing rounds. In contrast, the complexities associated with multiple financing rounds can be avoided when examining partnering choices in buyout syndicates. The once-for-all structure of buyouts also necessitates the lead financier to carefully consider who to invite to join the syndicate. Despite the obvious advantages of examining partner-selection decisions in buyout syndicates, research on this topic is still highly embryonic. To the best of our knowledge, Meuleman *et al*. (2010) is the only study that has examined the structuring of buyout syndicates, using unique survey data on 183 MBO syndicates in the UK between 1993 and 2003. They find that lead financiers tend to select familiar partners when moral-hazard risk in the buyout syndicate is substantial. Compared with Meuleman *et al*. (2010), our study hinges on a more extensive theoretical framework that can help to further improve our understanding of how networks of relationships among investment companies are formed and maintained. We also contribute to the literature by examining investor-selection decisions in a European buyout context. For that purpose, we have access to the data on the population of buyouts in Europe over the period 1997–2009. With this dataset, we can reconstruct all buyout relationships among investors and calculate investor experience variables. Interestingly, 93.2% of target firms in our sample is non-listed before their buyout, thereby also increasing the relevance of studying the effects of target risk on investor-selection decisions.[2] We are able to compute various accurate measures of target risk from the firms' annual accounts, as many non-listed firms in Europe have to file their financial statements with national authorities. Moreover, a considerable fraction (33.7%) of buyouts in Europe are cross-border in nature, with the lead financier and the

[2]Although most prior buyout research has focused on the US public-to-private deals of the 1980s, Kaplan and Strömberg (2009) point out that over 90% of recent buyouts in the USA also concern privately-held firms. However, data on these US firms are very hard to collect. In contrast, the disclosure requirements for non-listed firms in Europe allow us to also examine private-to-private transactions.

target firm each being located in a different country. We argue that the diversity in the institutional environment across the various European countries may affect the investor-selection decisions in European buyout syndicates. Our dataset allows us to examine whether lead financiers actually value investor knowledge about target-country institutions when structuring their buyout syndicate. Finally, our study is the first to investigate whether partnering decisions have genuine economic effects for the post-buyout performance of target firms.

Our empirical results reveal that lead financiers prefer syndicate partners with whom they have developed a prior relationship, either directly or indirectly. Besides, lead financiers tend to invite investors with expertise in the target industry. Likewise, they favor partners with knowledge about the legal rules and the culture of the target country, especially when having themselves only limited knowledge about those target-country institutions. Finally, lead financiers prefer co-investors with a similar level of cognition and status in the buyout network. We thus find compelling evidence that the ideas developed by Lazarsfeld and Merton (1954), Coleman (1988) and Burt (1992) apply in the context of European buyout syndicates. In line with our expectations, the above findings appear to be driven mainly by the risky buyouts in the sample. We further infer that an investor's already-established relationships are the most influential investor characteristic for selection, followed by the level of his target industry and institutional knowledge, and lastly by his similarity to the lead financier in terms of cognition and status. Finally, we show that lead financiers' partnering choices bear a non-trivial economic effect on the post-buyout profitability and growth of target firms. Specifically, the improvement in target profitability is significantly better when syndicate partners cooperated before, in line with the view that trust limits moral-hazard problems and stimulates information sharing within the buyout syndicate. The performance of target firms is further enhanced when partners have a similar level of cognition and status, thereby supporting the idea that a structure that limits interorganizational conflicts can improve the syndicate's effectiveness. Nonetheless, syndicating with a partner having expertise as regards the target industry and target-country institutions has the largest beneficial effect on the post-buyout performance of target firms. The latter finding thus points out that the combination of complementary resources is key to the evaluation, selection, and management of PE investments (see also Lockett and Wright, 1999).

The remainder of this paper is organized as follows. The following section presents our theoretical framework and hypotheses. The third section then describes the sample, the methodology, and variable measurements. The fourth section reports on the empirical results, including a detailed analysis of the influence of target-firm risk on partnering choices. This section also examines the effects of investor-selection decisions on the post-buyout performance of target firms. Finally, the fifth section concludes the paper.

Theoretical framework and hypotheses

In this study, we rely on social network theory as theoretical framework to develop our hypotheses. This theory, which is part of the organizational sociology literature, views economic activity as being nested in a network of interfirm relationships (Granovetter, 1985). Consequently, once having decided to syndicate a buyout, lead financiers may prefer to work with investment companies with whom they developed a prior relationship, to reduce the risk and uncertainty associated with interorganizational exchange. However, those lead financiers may also use their syndicate decisions to set up new relationships with investors with whom they had not yet established any prior ties, in order to access new opportunities, information, and skills. This can then also help them to increase their organizational adaptability. As pointed out by Uzzi (1997), firms typically face an embeddedness paradox, as they have a simultaneous need for depth (i.e., strengthen their existing relationships) and breath (i.e., develop new relationships) in their network. In the case of buyout syndicates, we expect that both forces might play a role in lead financiers' partnering choices, with one dominating over the other depending upon the specific context. Finally, when inviting co-investors, either existing or new ties, lead financiers may also seek to cooperate with partners who are similar to themselves in terms of cognition and status, as this can help to minimize the number of disagreements and misunderstandings within the syndicate.

Hence, we develop testable hypotheses as to the investor-selection decisions of lead financiers in European buyout syndicates by inferring insights from Coleman's (1988) network closure theory, Burt's (1992) structural holes theory, and Lazarsfeld and Merton's (1954) homophily theory. When formulating our hypotheses, we also account for the specific institutional environment in Europe, with differences in investor rights and culture across the various European countries. The relatively large fraction of cross-border buyouts in Europe allows us to also examine whether lead financiers actually value investor knowledge about target-country institutions. We further argue that the significance of investor characteristics may depend upon the riskiness of the target firm. Given that our sample mostly involves non-listed target companies, it is particularly suited to examine the influence of target risk on partnering choices. In this paper, we focus on various aspects of target risk, such as target adverse-selection risk, target moral-hazard risk, and target default risk.

Coleman's (1988) network closure theory

Based on Coleman's (1988) network closure theory, prior social relationships produce trust, which might subsequently constrain opportunistic behavior among the investors in a syndicate. Although lead financiers usually retain the ultimate responsibility for the selection and the management of portfolio firms, they also expect their partners to actively provide information and to dutifully assist in target screening, monitoring, and value creation. Hence, they seek to avoid syndicate partners who might overstate their own knowledge and capabilities as well as partners who might withhold information and management support once the syndicate has been established. Put differently, lead financiers prefer to set up syndicates that have an atmosphere of trust, where opportunistic behavior is less likely to occur. This trust among financiers is then expected to also restrain protectionism in information sharing.

Keeping Coleman's (1988) network closure theory in mind, the probability that a lead financier selects a particular investment company to join the buyout syndicate is likely to depend on the level of earlier experience that was developed with this investor, *ceteris paribus*. Lead financiers may indeed prefer syndicate partners with whom they syndicated before. Because of repeated interactions, uncertainty as to the knowledge and capabilities of those direct partners tends to be smaller. Moreover, direct partners likely will be re-invited only if they meticulously performed their tasks in prior buyout syndicates. So, a large number of repeated interactions among buyout financiers can be considered as an indication of the trust that they have developed in each other over time. Along repeated cooperation, financiers indeed build up mutual trust, thereby assuming that the intentions of their direct partners are benign (Gulati and Gargiulo, 1999). Lead financiers may therefore consider the probability that a direct partner will behave opportunistically to be limited, as such behavior would result in the loss of accumulated trust. This, in turn, would reduce the odds of a future cooperation and hence access to future deal flow (Axelrod, 1984). In other words, trust tends to constrain the opportunistic behavior by investors and, thus, moral-hazard problems within the buyout syndicate.

Next, the probability that a lead financier invites a particular investment company to join the buyout syndicate might also depend on the level of indirect experience that was developed with this investor. Lead financiers might indeed also choose investors who cooperated with their own direct partners in prior deals. Such indirect partners could be considered as more trustworthy compared to investors having no link whatsoever with the lead financier. The reason is that opportunistic behavior on the part of those indirect partners likely is curbed *ex ante*, as insincere behavior could become known not only to the lead financier, but also to their shared investors (e.g., Chung *et al*., 2000; Robinson and Stuart, 2007). This, in turn, might reduce the indirect partner's opportunities to participate in future syndicates and, thus, his access to future deal flow. Shared investors can therefore engender a certain level of trust among the lead financier and his indirect partners.

Overall, we expect the need to cooperate with trustworthy syndicate partners to be larger when the target firm exhibits substantial risk. Indeed, in settings where actors find themselves vulnerable to the actions of others, they usually prefer to restrict their interactions to trusted parties (Galaskiewicz and Shatin, 1981). The reason is that the assistance of a co-investor in target screening, monitoring, and value adding likely is more valuable in this case. Moreover, when target risk is non-trivial, the consequences of selecting a syndicate partner who overstates his knowledge and capabilities or who withholds information and management support could be hugely detrimental to the ultimate success of the buyout. We therefore conjecture that the ideas derived from Coleman (1988) mainly hold when the buyout target is a risky company. In contrast, in low-risk settings, lead financiers might be more inclined to use their partnering choices to expand their network, for example to enhance their access to future deal flow.

The above arguments result in the following hypotheses:

Hypothesis 1a: Lead financiers tend to select syndicate partners with whom they developed a prior relationship, either directly or indirectly.

Hypothesis 1b: The wish to cooperate with familiar partners is greater for risky target firms.

Burt's (1992) structural holes theory

Burt (1992) points out that most social structures are characterized by dense clusters of strong connections. Information within these clusters tends to be homogeneous and redundant. When two separate clusters possess non-redundant information, a structural hole exists between them. One of the central insights arising from Burt's (1992) structural holes theory is that lead financiers could use their partnering choices to broaden their knowledge base and to fill a shortage of information and skills needed for the selection and the management of portfolio firms, that is, to bridge the structural hole. When deciding on their syndicate partners, lead financiers might indeed focus on an investor's capability to provide complementary information and skills, which are useful for target screening, monitoring, and value adding (see also Stuart, 2000; Walker *et al*., 1997). So, by their partnering choices, lead financiers could try to access specific resources from other investors; this idea is also in line with the resource-based theory of syndication (e.g., Lockett and Wright, 1999).

Relying on Burt's (1992) structural holes theory, we first conjecture that the probability that the lead financier selects a particular syndicate partner depends upon that investor's level of expertise in the target industry. When a partner can bring more industry-specific information and skills to the syndicate, the buyout syndicate might indeed obtain a better understanding of the target's products and services, its customers and suppliers, its competitive environment, among other things (De Clercq and Dimov, 2008). As a result, the process of target screening, monitoring, and value creation can be improved. Moreover, we expect that especially lead financiers with a limited expertise in the target industry aim to involve investors possessing this industry-specific information and skills.

For similar reasons, we conjecture lead financiers to prefer syndicate partners with knowledge about the target country's institutional environment. Involving investors with this specific information and relevant skills may allow the syndicate to achieve a better understanding of the legal context and the cultural values faced by the target firm. This may then help to improve the process of target screening, monitoring, and value creation and, thus, increase the syndicate's effectiveness. Here too, we expect especially lead financiers with limited expertise as to the target country's legal rules and culture to involve investors having this specific knowledge. Buyout financiers with a lack of investment expertise in a specific European country could thus compensate their own knowledge gap by selecting partners capable of introducing that country-specific expertise into the syndicate.

Finally, we argue that the ideas derived from Burt's (1992) structural holes theory are most likely to apply when the target firm exhibits considerable risk. For example, when target adverse-selection risk is substantial, the lead financier likely faces a stronger need to involve partners with the necessary knowledge about the target industry or target-country institutions. This need likely is reinforced when the lead financier lacks this expertise. Under those circumstances, the input of syndicate partners in the process of target screening and deal structuring can be expected to be more valuable. Besides, when target moral-hazard risk is extensive, incumbent target management may find it less appealing to behave opportunistically when the buyout syndicate has developed a more in-depth understanding of the target industry, target-country legal system and culture. Hence, by inviting investors with complementary information and relevant skills, lead financiers may wish to curb the odds of opportunistic behavior on the part of the target firm. Lastly, a syndicate that possesses the necessary industry-specific and country-specific expertise likely is better capable to add value in a turnaround, once the target's financial position deteriorates.

The above arguments result in the following hypotheses:

Hypothesis 2a: Lead financiers tend to select syndicate partners with complementary expertise as regards the target industry and the target-country institutional environment.

Hypothesis 2b: The wish to cooperate with partners having complementary expertise is greater for risky target firms.

Lazarsfeld and Merton's (1954) homophily theory

Earlier psychology and sociology research into homophily has revealed that individuals prefer to cooperate with people who are similar to themselves as regards a variety of characteristics, such as gender, race, age, education, and occupation (McPherson *et al*., 2001). The main reason is that highly comparable individuals are more likely to share the same ideas and to behave alike, thereby reducing the number of misunderstandings and disagreements when working together. Homophily thus facilitates the exchange of information and makes cooperation more effective (Van den Steen, 2010).

Based upon Lazarsfeld and Merton's (1954) homophily theory, we argue that when inviting either a prior tie or setting up a new relationship, lead financiers in a buyout syndicate prefer syndicate partners similar in terms of cognition, that is, the capability to process and to interpret information, to apply knowledge, and to solve problems, which is largely determined by the investor's level of buyout experience (e.g., Cohen and Levinthal, 1990; Shettleworth, 2010), and syndicate partners similar in terms of status, that is, the investor's social standing among his peers, determined by his position in the buyout network (Bonacich, 1987). Prior research indeed suggests that investors with a comparable social status behave more alike, as they have similar perceptions about how to interact with others (e.g., Chung *et al*., 2000). Overall, we expect lead financiers to prefer syndicate partners with a similar level of cognition, as this should reduce the number of misunderstandings and disagreements in the buyout syndicate. Likewise, we conjecture that lead financiers select co-investors with a similar level of status and thus with a similar position in the buyout network.

Finally, we expect lead financiers to account for the above investor characteristics when inviting partners to join the buyout syndicate especially when the buyout involves a risky target firm. When target adverse-selection risk, target moral-hazard risk, or target default risk is substantial, lead financiers likely will prefer investors with whom misunderstandings and disagreements in the buyout syndicate can be expected to be minor. The reason is that a better functioning of the buyout syndicate could facilitate a faster resolution of target–investor information and incentive problems or target financial distress once these problems surface. In

sum, we argue that the ideas derived from Lazarsfeld and Merton (1954) are likely to hold especially for risky target firms.

The above arguments result in the following hypotheses:

Hypothesis 3a: Lead financiers tend to select syndicate partners with a similar level of cognition and status.

Hypothesis 3b: The wish to cooperate with partners having a similar level of cognition and status is greater for risky target firms.

Sample selection, methodology, and variable measurements

Sample

This study relies on a unique, in part hand-collected dataset that includes information on all syndicated buyouts that were completed in Europe over the period 1999–2009. To be retained in the sample, the target firm had to be registered in Europe and had to be private-equity buyout-backed during the sample period. The transaction data were collected from Zephyr, which includes information on 3,506 European buyouts over the period 1999–2009.[3] This large dataset was subsequently used to calculate all investor experience and interrelationship variables. Accounting and ownership information on each target firm, lead financier, and potential syndicate partner were gathered from Amadeus and Datastream.[4] To complete missing values for the investor characteristics, we consulted the annual EVCA directories of members and examined the websites of national private-equity associations and buyout investors. Data on the annual country-level amount of finance committed to the buyout industry and on the actual buyout investments in each country and year were manually collected from the EVCA yearbooks.

In 630 sample deals (18% of the population of buyouts), a syndicate was established to finance the transaction.[5] We first removed the six club deals from the sample, as buyout investors in those deals jointly submitted a bid for the target firm. Those target firms were thus not sold through private negotiation with a buyout financier, who decided to set up a syndicate and selected one or more syndicate partners. Second, we removed the 29 syndicates in which investors acted through a special purpose vehicle without providing accounting or ownership information. Third, we excluded the 31 syndicated buyouts that targeted financial firms, as the latter firms are subject to specific regulations and as their financial statements are often compiled under different accounting standards. Fourth, we had to delete another 96 syndicated buyouts, for which we could not identify the lead financier in the syndicate.[6] To find each syndicate's lead financier, we first examined the deal comments in Zephyr; the database reported the initiating investor in about 60% of buyouts. If the lead financier could not be identified from the deal comments, we classified the investor financing the largest fraction of the deal as lead financier (see also Meuleman *et al*., 2009b, 2010). Yet, those investor stakes were not always disclosed either. Finally, we were not able to collect the financial information on non-European non-listed buyout investors, corresponding to 102 sample deals.[7] So, we ended up

[3]The Zephyr database of Bureau van Dijk contains information on almost 900,000 transactions worldwide for the period 1997–2009, covering M&As, IPOs, stock buybacks, and buyouts. Compared to the SDC Platinum database of Thomson Financial and Mergerstat, Zephyr has a larger coverage of European transactions and provides extensive deal comments. As the investor experience and interrelationship variables are calculated over a two-year historical window, the first two years of data in the database are only used to construct the explanatory variables for the regression analyses.

[4]The Amadeus database of Bureau van Dijk contains the annual accounts on over 18 million listed and non-listed firms in Europe. There are no specific size requirements for a company to be included in this database. The database combines the data from over 30 specialist regional information providers and presents all accounting items in a uniform format across the various European countries to allow for a reasonable cross-border analysis. The way information is presented has been approved by leading accounting bodies and by practitioners in the field. New data are checked rigorously before being entered into the database. The Datastream database of Thomson Financial is the world's largest financial database including, among other things, financial information on listed companies.

[5]Unfortunately, we were not able to identify the investors who were invited but refused to participate in the syndicate because of for instance capital constraints or a lack of time. Overall, we expect this limitation of the dataset to work against us finding influential investor characteristics for selection into a buyout syndicate.

[6]Two-tailed *t*-tests could not reject the null hypothesis that these 96 omitted buyouts have the same deal and target-firm characteristics as the syndicated deals retained in the sample (not reported). Hence, the results of this test should reduce concerns about a sample selection bias. The results of all non-reported tests can be obtained from the authors upon request.

[7]Of these 102 buyouts, 88 (i.e., 86.3%) were backed by a lead financier or by a syndicate partner domiciled in the USA. For this group of 88 buyouts, we noted that 72 (i.e., 81.8%) were joint investments with an investor in the UK. The results of non-reported parametric *t*-tests and non-parametric Wilcoxon rank-sum tests show that the target companies of those omitted deals exhibit higher default risk. As a consequence, our sample may not be a random drawing from the population. We have applied a two-stage Heckman (1979) correction to deal with a potential sample selection bias. In a first step, we modeled the probability that the financial information on the lead financier and syndicate partner(s) is available. The inverse Mills ratio, obtained from this first step, was then added as an explanatory variable in all subsequent regression models but was never significant (not reported).

with a final sample of 366 buyout syndicates over the period 1999–2009.

Table 1 displays the absolute and percentage distribution of transaction year, target industry, target country, lead-financier country, and co-investor country for the final sample. The 366 syndicates in our sample involve 260 unique lead financiers and 271 unique syndicate partners. Most syndicated buyouts arose in the later sample years (2004–2008). The number of deals declined sharply in 2009, following the worldwide financial crisis. Target firms are mainly active in manufacturing, wholesale, personal and business services, and food. The geographical distribution of the deals is highly dispersed, with a considerable fraction of target firms registered in France and Spain. Finally, lead financiers and syndicate partners are mainly registered in France, the UK, and Spain.

Table 1 Time, industry, and geographical distribution of the sample

Panel A: Deal characteristics	
Transaction year	
1999	9 (2.45%)
2000	30 (8.20%)
2001	18 (4.92%)
2002	15 (4.10%)
2003	24 (6.56%)
2004	39 (10.66%)
2005	30 (8.20%)
2006	96 (26.23%)
2007	63 (17.21%)
2008	33 (9.02%)
2009	9 (2.46%)
Target industry	
SIC 0 – Agriculture	0 (0.00%)
SIC 1 – Mining	6 (1.64%)
SIC 2 – Food	42 (11.48%)
SIC 3 – Manufacturing	96 (26.23%)
SIC 4 – Transportation	39 (10.66%)
SIC 5 – Wholesale	84 (22.96%)
SIC 7 – Personal and business services	75 (20.49%)
SIC 8 – Health, legal, social services	24 (6.56%)
SIC 9 – Administration	0 (0.00%)
Target country	
Austria	3 (0.82%)
Belgium	27 (7.38%)
Czech republic	3 (0.82%)
Denmark	15 (4.10%)
Finland	12 (3.28%)
France	147 (40.17%)
Germany	15 (4.10%)
Italy	27 (7.38%)
The Netherlands	21 (5.74%)
Norway	6 (1.64%)
Spain	63 (17.21%)
Sweden	0 (0.00%)
Switzerland	0 (0.00%)
United Kingdom	27 (7.38%)
United States of America	0 (0.00%)
Total	366

Panel B: Financier characteristics

Country	*Lead financier*	*Syndicate partner*
Austria	1 (0.48%)	3 (1.11%)
Belgium	21 (8.08%)	21 (7.75%)
Czech republic	0 (0.00%)	3 (1.11%)
Denmark	3 (1.15%)	0 (0.00%)
Finland	9 (3.46%)	9 (3.32%)
France	90 (34.62%)	108 (39.85%)
Germany	6 (2.31%)	12 (4.43%)
Italy	9 (3.45%)	6 (2.21%)
The Netherlands	7 (2.69%)	15 (5.54%)
Norway	0 (0.00%)	0 (0.00%)
Spain	24 (9.23%)	36 (13.28%)
Sweden	12 (4.61%)	3 (1.11%)
Switzerland	3 (1.15%)	0 (0.00%)
United Kingdom	45 (17.31%)	54 (19.93%)
United States of America	30 (11.54%)	1 (0.37%)
Total	260	271

Notes: This table displays the absolute and percentage distribution of transaction year, target industry, target country, lead-financier country, and syndicate-partner country for syndicated buyouts in Europe during 1999–2009. To be retained in the sample, the target firm had to be registered in Europe and had to be private-equity buyout-backed, which resulted in an initial sample of 630 syndicated buyouts. We ended up with a final sample of 366 buyout syndicates, after applying the following sample selection criteria. We first removed the six club deals. Next, we removed the 29 syndicates in which investors acted through a special purpose vehicle without providing accounting or ownership information. Third, we excluded the 31 syndicated buyouts that targeted financial firms. We also had to delete another 96 syndicated buyouts for which we could not identify the lead financier. Finally, we were not able to collect the financial information on non-European non-listed lead financiers and syndicate partners, corresponding to 102 sample transactions.

Methodology and variable measurements

To identify the investor experience and network characteristics lead financiers take into account when selecting their syndicate partners, we rely on the binomial logit model. The latter model is appropriate when the dependent variable can take on one of only two possible values, representing either the presence or the absence of the attribute of interest. In our study, the dependent variable SELECTED is a dichotomous variable based on the dyadic relation between lead financiers and potential co-investors. So, it equals one for an investor who participates in the buyout syndicate, and zero otherwise. The binomial logistic regression model then generates the probability that SELECTED equals one, given the values of the explanatory variables. For every sample deal, we define the investor opportunity set, that is, the pool of investors from which the lead financier can select one or more syndicate partners, as all investors having executed a buyout in the two years preceding the deal under consideration.[8] Our research design thus allows taking into account that a lead financier can involve more than one co-investor in the syndicate (see also Gulati and Gargiulo, 1999; Sorenson and Stuart, 2008). Hence, our initial dataset includes 312,256 observations. As observations with missing values for the variables in the regression models had to be deleted too, our final sample comprises 189,124 observations.[9] A few scholars have imposed additional criteria on the investor oppor-

Moreover, the results for the other variables proved robust.

[8]We also ran a robustness test using data on the investors active in the five years before the studied deal. Results proved robust.

[9]Parametric *t*-tests and non-parametric Wilcoxon rank-sum tests could not reject the null hypothesis that the characteristics of the lead financiers, potential syndicate partners, and target firms of the omitted deals are similar to those of the retained sample deals. A selection bias due to the omission of these observations is thus unlikely.

tunity set so as to reduce the number of observations in the dataset in order to ease the computational burden. However, restricting the investor opportunity set might lead to a severe sample selection bias. We therefore decided to not follow this approach for our base model, but imposed extra restrictions in robustness tests (see further).

Our explanatory variables capture the investor characteristics that lead financiers may consider, based upon our theoretical framework. To examine Coleman's (1988) network closure theory, we compute DIRECT EXPERIENCE as the natural log of one plus the number of buyouts in which a potential syndicate partner and the lead financier of the current deal jointly invested over the previous two years. Besides, we include INDIRECT EXPERIENCE, namely, the natural log of one plus the number of buyouts in which a potential syndicate partner and the lead financier's direct partners invested together over the last two years.[10] We impose a log transformation on both variables to capture the declining marginal effect of an extra joint investment on the formation of trust (see also Chung *et al*., 2000; Meuleman *et al*., 2010). We add one to the number of buyouts before implementing the log transformation, as the log of zero – in case of no prior relationship – cannot be calculated.

To examine Burt's structural holes theory, we first compute INDUSTRY KNOWLEDGE as the natural log of one plus the number of buyouts an investor executed as a stand-alone, as a lead financier, or as a participant in a syndicate in the same four-digit SIC industry as that of the target firm over a two-year historical window. The log transformation is imposed to capture the diminishing learning effect from an extra investment. To test the idea that especially lead financiers with limited expertise in the target industry aim to involve co-investors having this industry knowledge, we compute an interaction term between INDUSTRY KNOWLEDGE and LEAD INDEXP, which is the natural log of one plus the number of buyouts the lead financier of the current deal executed in the same four-digit SIC industry over the last two years. Next, to examine the idea that lead financiers also prefer syndicate partners with information and skills as to the target-country institutional environment, we construct two proxies, each capturing a different aspect of that institutional setting. First, LEGAL KNOWLEDGE is calculated as the natural log of one plus the number of buyouts an investor executed as a stand-alone, as a lead financier, or as a participant in a syndicate in a country with the same legal tradition as that of the target firm over a two-year historical window. We distinguish between the common-law and the civil-law legal tradition to compute this variable. We also implement robustness tests, using other variables that can capture the target legal tradition (see further). Second, CULTURAL KNOWLEDGE is proxied by the commonly used Mitra and Golder (2002) measure, which considers that an investor's knowledge about a country's culture likely is more extensive when having invested in countries that are culturally similar to that of the target firm. For every potential syndicate partner, it is calculated as follows:

$$CULTURAL\ KNOWLEDGE = \sum_{i=1}^{n} \frac{\ln(1+years_i)}{cultural\ distance_i} \quad (1)$$

where n captures the number of countries in which the investor had portfolio investments over the last two years. $Years_i$ is the number of years during which the investor invested in country i prior to the buyout, with a maximum of two. $Cultural\ distance_i$ is calculated as the Euclidean distance between the Hofstede (2001) indices, i.e. power distance, individualism, uncertainty avoidance, masculinity, and pragmatism of country i and those of the target country. Here too, we interact LEGAL KNOWLEDGE with LEAD LEGALEXP, which captures the lead financier's experience with the target-country legal tradition over a two-year historical window. Likewise, we compute an interaction term between CULTURAL KNOWLEDGE and LEAD CULTEXP, which is the Mitra and Golder (2002) cultural knowledge measure calculated for the lead financier of the current deal.

To examine Lazarsfeld and Merton's (1954) homophily theory, we compute COGNITIVE SIMILARITY as the ratio of a potential syndicate partner's buyout experience and that of the lead financier. An investor's buyout experience is measured by the number of buyouts executed as a stand-alone, as a lead financier, or as a participant in a syndicate over a two-year historical window. The lower of these two numbers is included in the numerator. Under conditions of bounded rationality, interactions among investors are usually inhibited by their inability to foresee contingencies and to observe the actions of their exchange partners (Williamson, 1975). It is usually only with experience that such cognitive skills develop, allowing investors to identify issues that are likely to be important in selecting and monitoring target firms, how those issues can be conceptualized, and, perhaps, alternative approaches for dealing with them can be established. So, cognitive similarity refers to similarity in representations, interpretations, and systems of

[10]Graph theory, a mathematical discipline used in the social network literature, considers an investor with a path length of one unit as a direct partner. An investor with a path length of two units is then an investor who previously syndicated with a direct partner of the lead financier, whereas an investor with a path length of three units is an investor who previously syndicated with an investor who syndicated with a direct partner of the lead financier. In this study, we only consider investors with a path length of two units to identify indirect partners, as we expect lead financiers' eagerness to involve indirect investors to decline as their path length to the lead financier grows larger (see also Gulati and Gargiulo, 1999).

meaning among firms (Nahapiet and Ghoshal, 1998; Simsek *et al*., 2003). A larger value for COGNITIVE SIMILARITY thus implies that the lead financier and the potential co-investor are more similar in terms of cognition. Besides, we calculate STATUS SIMILARITY, which is the ratio of a potential syndicate partner's Bonacich (1987) eigenvector centrality score and that of the lead financier. We again include the lower of these two in the numerator (see the Appendix for more details). The Bonacich (1987) eigenvector centrality variable is a well-established measure in the social network literature, capturing how central an investor is in the buyout network by focusing on whether this investor is connected to many other investors, who in turn could be linked to numerous others. Investors with a more prominent network position tend to enjoy a higher status and, hence, are likely to receive more invitations to co-invest because of the legitimacy they confer on other investors (Freeman, 1999). Table 2 summarizes the measurement of our test variables and their hypothesized relation with SELECTED, given our arguments in the previous section of the paper.

Table 2 also reports on a number of control variables. First, we need to account for a potential partner's level of buyout experience (INVESTOR EXPERIENCE), calculated as the natural log of one plus the number of buyouts executed as a stand-alone, as a lead financier, or as a participant in a buyout syndicate over the last two years, to rule out that DIRECT EXPERIENCE, INDIRECT EXPERIENCE, INDUSTRY KNOWLEDGE, LEGAL KNOWLEDGE, or CULTURAL KNOWLEDGE merely proxy for investor experience. Second, lead financiers might also focus on syndicate partners who are able to provide (enough) equity finance to the target firm. We therefore include INVESTOR SIZE, measured by the natural log of the potential partner's total assets at fiscal year-end before the buyout, to capture this idea. Our accounting data indeed do not always allow us to separate an investor's assets under management from his other assets (e.g., PPE). Clearly, our variable only captures the amount of money that the investor manages today (or plans to manage in the near future), thus making abstraction of the amount of finance cumulatively raised in earlier buyout funds. Besides, we control for the size of the lead financier, again using the natural log of total assets (LEAD SIZE). Larger lead financiers have a bigger appetite for deal flow and, hence, may seek to set up larger syndicates. Fourth, we account for the level of investor competition for target companies, which is high whenever the inflow of finance into the buyout industry exceeds the total demand for finance by target firms (Gompers and Lerner, 2000). To deal with participants' concerns that lower-quality deals might be accepted in times of easy access to finance, lead financiers may have no choice but to shape a more concentrated syndicate in order for investors to accept their invitation. COMPETITION is computed as the one-year lagged ratio of the total amount of equity raised by buyout financiers in a year in a country minus the total amount of equity invested in buyouts in that year and country divided by the average annual amount of equity invested over the sample period. We lag this variable by one year in the regression analyses to mitigate reverse causality concerns.

To explore the effects of target risk on partnering choices in buyout syndicates, we consider various aspects of target risk, such as target adverse-selection risk, target moral-hazard risk, and target default risk. We inversely proxy target adverse-selection risk by TARGET AGE, namely, the natural log of one plus the number of years between the firm's incorporation and its buyout. As buyout targets in Europe usually involve non-listed companies, the *ex ante* probability that a target firm turns out to be a 'lemon' cannot be ignored. Besides, private information provided by target management might be difficult to verify. Target moral-hazard risk is inversely proxied by TARGET PPE, which is the ratio of property, plant, and equipment to total assets, as target managers are less able to divert resources in firms with more hard assets (e.g., Himmelberg *et al*., 1999). Also, tangible assets are easier to monitor and to verify by courts. Finally, target default risk is inversely proxied by TARGET Z-SCORE, that is, Altman's (1993) Z″-score, which is an adapted version of the Z-score that can also be calculated for non-listed companies. The latter variables are measured using the target's annual accounts at fiscal year-end before the buyout. We subsequently use the 33th and 67th percentile of each variable to identify the target firms with low and high risk and thereafter run the logistic regressions for two subsamples, classified on the basis of each of these target-risk variables.

Table 3, Panel A reports summary statistics on the investor network and experience variables, showing separate statistics for the selected and the non-selected investors in the buyout syndicates, respectively. All explanatory variables are measured at fiscal year-end preceding the transaction to mitigate reverse causality concerns. To limit the influence of outliers, variables are winsorized at 5%–95%, that is, extreme values are replaced by their corresponding percentile.[11] The panel also displays the results of parametric *t*-tests and non-parametric Wilcoxon rank-sum tests to examine whether the mean and median investor characteristics are significantly different across these two investor groups. The results reveal that the selected investors have a significantly larger level of direct and indirect experience with the lead financier than the non-selected investors. Also, syndicate partners have more extensive knowledge about

[11]Qualitatively similar results are obtained when explanatory variables are winsorized at 1%–99% or when the data are trimmed, although *p*-values are slightly higher in the latter case.

Table 2 Dependent and explanatory variables

Dependent variable	*Definition*	
SELECTED	Dummy variable that equals one for an investor who participates as a partner in the buyout syndicate, and zero otherwise.	
Explanatory variables		*Expected sign*
Investor characteristics		
DIRECT EXPERIENCE	The natural log of one plus the number of buyouts in which a potential syndicate partner and the lead financier of the current deal jointly invested over the previous two years.	+
INDIRECT EXPERIENCE	The natural log of one plus the number of buyouts in which a potential syndicate partner and the lead financier's direct partners jointly invested over the last two years.	+
INDUSTRY KNOWLEDGE	The natural log of one plus the number of buyouts a potential syndicate partner executed as a stand-alone, as a lead financier, or as a participant in a syndicate in the same four-digit SIC industry as that of the target firm over the last two years.	+
INDUSTRY KNOWLEDGE * LEAD INDEXP	Interaction of INDUSTRY KNOWLEDGE (see above) with the natural log of one plus the number of buyouts the lead financier of the current deal executed as a stand-alone, as a lead financier, or as a participant in a syndicate in the same four-digit SIC target industry over the last two years.	−
LEGAL KNOWLEDGE	The natural log of one plus the number of buyouts a potential syndicate partner executed as a stand-alone, as a lead financier, or as a participant in a syndicate in a country with the same legal tradition (common-law as opposed to civil-law) as the target country over the last two years.	+
LEGAL KNOWLEDGE * LEAD LEGALEXP	Interaction of LEGAL KNOWLEDGE (see above) with the natural log of one plus the number of buyouts the lead financier of the current deal executed as a stand-alone, as a lead financier, or as a participant in a syndicate in a country with the same legal tradition (common-law as opposed to civil-law) as that of the target country over the last two years.	−
CULTURAL KNOWLEDGE	The Mitra and Golder (2002) cultural knowledge measure which is calculated as follows: $$\text{CULTURAL KNOWLEDGE} = \sum_{i=1}^{n} \frac{\ln(1+\text{years}_i)}{\text{cultural distance}_i}$$ where n captures the number of countries in which the investor had portfolio investments over the previous two years. $Years_i$ represents the number of years for which the investor invested in country i prior to the buyout, with a maximum of two. $Cultural\ distance_i$ is calculated as the Euclidean distance between the Hofstede (2001) indices, i.e. power distance, individualism, uncertainty avoidance, masculinity, and pragmatism of country i and those of the target country.	+
CULTURAL KNOWLEDGE * LEAD CULTEXP	Interaction of CULTURAL KNOWLEDGE (see above) with the Mitra and Golder (2002) cultural knowledge measure calculated for the lead financier of the current deal over the last two years.	−
COGNITIVE SIMILARITY	The ratio of a potential syndicate partner's buyout experience and that of the lead financier. The magnitude of buyout experience is proxied by the number of buyouts, executed as a stand-alone, as a lead financier, or as a participant in a syndicate over the last two years. In the numerator, the lower of these two numbers is included.	+
STATUS SIMILARITY	The ratio of the Bonacich (1987) eigenvector centrality score of a potential syndicate partner and that of the lead financier. In the numerator, the lower of these two numbers is included.	+
Control variables		
INVESTOR EXPERIENCE	The natural log of one plus the number of buyouts, executed as a stand-alone, as a lead financier, or as a participant in a syndicate over the last two years.	
INVESTOR SIZE	The natural log of total assets of a potential syndicate partner, measured at the fiscal year-end before the buyout (in million EUR).	
LEAD SIZE	The natural log of total assets of the lead financier of the current deal, measured at the fiscal year-end before the buyout (in million EUR).	
COMPETITION	The ratio of the total amount of equity raised by buyout financiers minus the total amount of equity invested in buyouts in a country in a year divided by the average annual amount of equity invested over the sample period.	
Target characteristics		
TARGET AGE	The natural log of one plus the number of years between the target's incorporation and its buyout, measured at the fiscal year-end before the buyout.	
TARGET PPE	The ratio of property, plant, and equipment to total assets, measured at the fiscal year-end before the buyout.	
TARGET Z-SCORE	0.0656 * (working capital/total assets) + 0.0326 * (retained earnings/total assets) + 0.0672 * (EBITDA/total assets) + 0.0105 * (book value of equity/total debt), measured at the fiscal year-end before the buyout.	

Notes: This table displays the measurement of the dependent and all explanatory variables. We rely on the binomial logit model to identify the investor characteristics lead financiers take into account when selecting syndicate partners. Our explanatory variables capture the investor experience and network characteristics that lead financiers may consider, based upon our theoretical framework. The last column reports their expected relation with the probability of being selected.

Table 3 Summary statistics and univariate results

Panel A	*Selected investors*					*Non-selected investors*					*Univariate results*	
Variable	*Mean*	*Median*	*Min*	*Max*	*Std Dev*	*Mean*	*Median*	*Min*	*Max*	*Std Dev*	*t-test*	*Wilcoxon test*
Investor characteristics												
DIRECT EXPERIENCE	0.026	0.000	0.000	1.058	0.139	0.000	0.000	0.000	1.097	0.013	45.03**	47.25***
INDIRECT EXPERIENCE	0.002	0.000	0.000	0.693	0.047	0.000	0.000	0.000	1.097	0.015	3.93***	9.49***
INDUSTRY KNOWLEDGE	0.009	0.000	0.000	0.693	0.078	0.002	0.000	0.000	0.531	0.053	4.52***	5.17***
LEGAL KNOWLEDGE	0.331	0.000	0.000	2.773	0.614	0.177	0.000	0.000	3.136	0.272	6.16***	4.42***
CULTURAL KNOWLEDGE	1.522	1.426	0.693	2.485	0.178	1.362	1.290	0.693	1.291	5.764	7.40***	6.49***
COGNITIVE SIMILARITY	0.703	1.000	0.016	1.000	0.347	0.629	0.666	0.014	1.000	0.379	2.28*	1.85**
STATUS SIMILARITY	0.627	0.500	0.042	0.989	0.047	0.580	0.629	0.010	0.989	0.181	0.20	0.75

Panel B	*Target, lead-financier and control variables*				
Variable	*Mean*	*Median*	*Min*	*Max*	*Std Dev*
INVESTOR EXPERIENCE	0.312	0.000	0.000	3.714	0.592
INVESTOR SIZE	11.501	9.899	6.467	15.088	2.348
LEAD SIZE	11.945	10.739	7.621	14.298	0.593
LEAD INDEXP	0.002	0.000	0.000	0.972	0.190
LEAD LEGALEXP	0.510	0.526	0.000	1.449	0.461
LEAD CULTEXP	0.402	0.000	0.000	2.718	0.617
COMPETITION	0.293	0.334	–0.513	1.002	0.532
TARGET AGE	2.438	2.397	0.000	4.927	1.189
TARGET PPE	0.196	0.134	0.000	0.640	0.202
TARGET Z-SCORE	1.721	1.148	0.005	13.759	1.793

Notes: This table reports summary statistics and univariate results for the explanatory variables. Panel A shows separate statistics for the characteristics of the selected and the non-selected syndicate partners, respectively. The panel also displays the results of parametric *t*-tests and non-parametric Wilcoxon rank-sum tests to examine whether the mean and median of investor characteristics are significantly different across these two groups of investors. Panel B displays summary statistics for the target-firm characteristics, lead-financier characteristics, and other control variables. All explanatory variables are measured at fiscal year-end before the buyout and are winsorized at 5%–95% to remove extreme values in either tail of the distribution. Table 2 presents a definition of all variables.
*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

the target industry and about target-country institutions. Moreover, syndicate partners are more similar to the lead financier in terms of cognition, yet not in terms of status.

Panel B then shows summary statistics on the control variables. While INVESTOR SIZE averages to 11.50 (i.e., €98.7 million), LEAD SIZE averages to a higher 11.95 (i.e., €154.8 million). Table 3 also displays that COMPETITION equals 0.29 on average for the period 1999–2009, indicating the presence of excess finance. The ease of investor access to equity finance was especially high in the years 2005–2008, while limited in the years 1999–2003 and 2009 (not shown in Table 3).

The very low average value for LEAD INDEXP points out that lead financiers in buyout syndicates have only very limited expertise in the target industry. The average values for LEAD LEGALEXP and LEAD CULTEXP indicate that lead financiers on average do have considerable knowledge about the legal rules and the culture of the target country. The lead financier and the target firm are located in a different country in 38.6% of sample deals (not shown in Table 3), which is only somewhat larger than the 33.7% cross-border deals for the population of buyouts. Interestingly, in 79.3% of the syndicated cross-border deals, one (or more) indigenous syndicate partner(s) participates in the buyout syndicate. As regards the target firm, average TARGET AGE equals 2.44, namely, 10.47 years. Average TARGET PPE and TARGET Z-SCORE amount to 0.20 and 1.72, respectively.

Table 4 displays pairwise correlations among the various continuous explanatory variables in our regression models. As correlations never exceed $\rho = 0.60$ and as VIF statistics are always below 5, multicollinearity poses no issue in our study.

Empirical results

In this section, we first discuss our main results on the determinants of the partner-selection decision. Thereafter, we report on the results from a number of robustness checks and examine in more detail the role of target risk. Next, we discuss the relative importance of the

Table 4 Correlation matrix

	1) DIRECT EXPERIENCE	*2) INDIRECT EXPERIENCE*	*3) INDUSTRY KNOWLEDGE*	*4) LEGAL KNOWLEDGE*	*5) CULTURAL KNOWLEDGE*	*6) COGNITIVE SIMILARITY*	*7) STATUS SIMILARITY*	*8) INVESTOR EXPERIENCE*	*9) INVESTOR SIZE*	*10) LEAD SIZE*	*11) COMPETITION*
1	1.000										
2	0.017***	1.000									
	(<0.001)										
3	0.010***	0.019***	1.000								
	(<0.001)	(<0.001)									
4	−0.009***	−0.010***	−0.003**	1.000							
	(<0.001)	(<0.001)	(0.017)								
5	0.003***	0.031***	0.200***	0.154***	1.000						
	(<0.001)	(<0.001)	(<0.001)	(<0.001)							
6	0.001	0.003**	−0.027***	0.012***	0.159***	1.000					
	(0.409)	(0.019)	(<0.001)	(<0.001)	(<0.001)						
7	0.012***	0.015***	0.019***	0.084***	−0.014***	−0.212***	1.000				
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)					
8	0.010***	0.019***	−0.001***	−0.010***	0.162***	−0.020***	0.057***	1.000			
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)				
9	0.033***	0.039***	0.007***	0.054***	−0.153***	−0.283***	0.210***	0.104***	1.000		
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)			
10	0.004***	0.002***	−0.012***	−0.031***	0.012***	−0.073***	0.062***	−0.004	−0.022***	1.000	
	(<0.001)	(0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.757)	(<0.001)		
11	0.001	0.001	0.017***	−0.034***	0.026***	0.043***	0.003	0.004	0.026***	0.001	1.000
	(0.481)	(0.723)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.170)	(0.268)	(<0.001)	(0.353)	

Notes: This table displays pairwise correlations among the continuous variables for the sample of 189,124 observations. Table 2 presents a definition of all variables. All explanatory variables are measured at fiscal year-end before the buyout and are winsorized at 5%–95% to remove extreme values in either tail of the distribution. *p*-values are reported between parentheses.
**p <0.05. ***p <0.01.

Table 5 Determinants of the partner-selection decision

	Pred. Sign	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6) Heckman*
Intercept		–10.2535***	–9.8671***	–9.9530***	–7.8693***	–7.8502***	–6.8055***
		(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
Investor characteristics							
DIRECT EXPERIENCE	+	5.2724***	5.2261***	5.7634***	4.3150***	4.8244***	4.8691***
		(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
INDIRECT EXPERIENCE	+	3.1290***	3.3175***	3.4729***	2.1445*	2.6233**	2.6016**
		(0.0042)	(0.0025)	(0.0030)	(0.0517)	(0.0203)	(0.0214)
INDUSTRY KNOWLEDGE	+	2.1032***	2.3720***	1.8640***	2.2300***	2.5439***	2.5320***
		(0.0008)	(0.0007)	(0.0048)	(0.0004)	(0.0003)	(0.0004)
INDUSTRY KNOWLEDGE * LEAD INDEXP	–		–1.7757			–1.9352	–1.8403
			(0.4581)			(0.4262)	(0.4544)
LEGAL KNOWLEDGE	+	0.8063***	0.7922***	1.1409***	0.5449**	0.9440***	0.9261***
		(0.0004)	(0.0004)	(<0.0001)	(0.0339)	(0.0004)	(0.0005)
LEGAL KNOWLEDGE * LEAD LEGALEXP	–			–0.7287***		–0.8052***	–0.2177
				(0.0033)		(0.0015)	(0.1860)
CULTURAL KNOWLEDGE	+	0.5385*	0.5328*	0.5591*	0.0600***	0.0612***	0.0618***
		(0.0665)	(0.0680)	(0.0582)	(<0.0001)	(<0.0001)	(<0.0001)
CULTURAL KNOWLEDGE * LEAD CULTEXP	–				–0.0216***	–0.0244***	–0.0268***
					(0.0037)	(0.0012)	(0.0003)
COGNITIVE SIMILARITY	+	0.7051**	0.6715**	0.7661***	0.7350**	0.8759***	0.7323
		(0.0209)	(0.0200)	(0.0085)	(0.0117)	(0.0032)	(0.1220)
STATUS SIMILARITY	+	0.6506***	0.6261***	0.7083***	0.4928**	0.6020***	0.5625**
		(0.0050)	(0.0059)	(0.0020)	(0.0295)	(0.0084)	(0.0125)
Control variables							
INVESTOR EXPERIENCE		–0.0584	–0.0842	–0.0794	0.1930	0.1839	0.1248
		(0.7937)	(0.7027)	(0.7156)	(0.4373)	(0.4518)	(0.6062)
INVESTOR SIZE		0.0878**	0.0884**	0.0833**	0.0922**	0.0882**	0.0984***
		(0.0182)	(0.0173)	(0.0257)	(0.0138)	(0.0191)	(0.0078)
LEAD SIZE		0.0649	0.0563	0.0662	0.0561	0.0580	0.0673
		(0.1915)	(0.2454)	(0.1797)	(0.2509)	(0.2385)	(0.1645)
COMPETITION		–0.0205	–0.0225	–0.0196	–0.0128	–0.0152	–0.0002
		(0.4805)	(0.4244)	(0.4807)	(0.6584)	(0.6041)	(0.9931)
LAMBDA							–0.1127
							(0.6935)
Nagelkerke R-square		0.1574	0.1553	0.1596	0.1404	0.1475	0.1431
LR statistic		116.225***	111.882***	119.267***	284.596***	295.504***	295.074***
AIC		1,958.153	1,947.622	1,919.874	2,038.358	1,747.617	1,808.467
Number of observations		189,124	189,124	189,124	189,124	189,124	189,124

Notes: This table displays the results from the logistic regressions as to the partner-selection decision for the full sample of 189,124 observations. SELECTED is the dependent variable. Table 2 presents a definition of all variables. All explanatory variables are measured at fiscal year-end before the buyout and are winsorized at 5%–95% to remove extreme values in either tail of the distribution. *p*-values are reported between parentheses. Column 1 displays the results of the base model and includes year dummies. Column 2 includes an interaction term between INDUSTRY KNOWLEDGE and LEAD INDEXP, while column 3 (4) incorporates an interaction term between legal (cultural) knowledge of the potential syndicate partner and the corresponding expertise of the lead financier. Because of multicollinearity problems, CULTURAL KNOWLEDGE and LEAD CULTEXP were orthogonalized. Column 5 includes all interaction terms at once. Finally, column 6 reports the results from a two-stage Heckman (1979) model that accounts for a possible selection bias. Table 6 reports the results from the first-step Heckman model.
*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$.

various investor network characteristics in partnering choices. Finally, we examine whether investor-selection decisions have genuine economic consequences for target firms.

Determinants of the partner-selection choice

Table 5 reports the outcome from the logistic regression models for the full sample of 189,124 observations. Column 1 shows the results from the base model. Column 2 then includes an interaction term between INDUSTRY KNOWLEDGE and LEAD INDEXP, while columns 3 and 4 incorporate the interaction of LEGAL KNOWLEDGE and CULTURAL KNOWLEDGE, respectively with the corresponding lead-financier variable. Next, column 5 includes all interaction terms at once. Finally, column 6 reports the results from a two-stage Heckman (1979) model that accounts for a potential sample selection bias. Specifically, we are concerned about the fact that

partner-selection decisions – by definition – can be examined only for the subset of syndicated buyouts. So, we check the robustness of our results after treating the syndication decision as endogenous. Overall, the estimated models are all highly significant, with an acceptable Nagelkerke R-square.

The results in Table 5 provide strong support for Coleman's (1988) network closure theory, implying that lead financiers prefer co-investors who they trust and, thus, do not expect to behave opportunistically. The results indeed reveal a significant positive coefficient on DIRECT EXPERIENCE, in line with our hypothesis that lead financiers prefer syndicate partners with whom they cooperated before. Likewise, INDIRECT EXPERIENCE has a significant positive sign, thereby pointing out that lead financiers also favor co-investors who already worked together with their own direct partners. Qualitatively similar results are obtained when INDIRECT EXPERIENCE is truncated at zero if the lead financier and the investor already jointly invested in a target firm over the last two years (not reported). As lead financiers might rather consider the investor as a direct partner in this case, the latter extra test thus confirms that indirect ties do matter for partner-selection decisions.

Next, our findings as to the investor experience variables also strongly support Burt's (1992) structural holes theory, which entails that lead financiers prefer co-investors with complementary information and skills. INDUSTRY KNOWLEDGE has a significant positive effect on SELECTED. This finding supports the idea that lead financiers favor syndicate partners with expertise in the target industry, *ceteris paribus*. Similar results are obtained when calculating this variable (1) at the two-digit SIC level, and (2) as a dummy that equals one if the potential partner invested in the target industry over the last two years, and zero otherwise. Yet, we fail to find a significant impact of the interaction term between INDUSTRY KNOWLEDGE and LEAD INDEXP. As already shown in Table 3, lead financiers generally have no strong specialization in the target industry, which might explain why lead financiers just consider whether a potential partner developed expertise in the target industry, *regardless* of their own level of industry knowledge. In addition to industry expertise, we find that lead financiers also tend to involve syndicate partners with knowledge about the target-country institutional environment. Specifically, LEGAL KNOWLEDGE and CULTURAL KNOWLEDGE positively and significantly influence SELECTED. Moreover, the interaction terms of these variables with the corresponding expertise of the lead financier are significantly negative when included in the regression models. Lead financiers thus tend to invite syndicate partners with knowledge about the target-country legal context and culture especially when having themselves only limited investment expertise in the target country. Similar results are obtained when measuring investor knowledge about target-country institutions by (1) a dummy that equals one if the potential partner and the target firm are located in countries with a different legal tradition, and zero otherwise, (2) the Euclidean distance between the Spamann (2010) anti-director rights index of the investor country and the target country, and (3) the Euclidean distance between the Hofstede (2001) indices for the investor country and the target country (not reported). However, once we replace the country-level institutional characteristics by a variable that captures an investor's cross-border experience, calculated as either the natural log of one plus the number of cross-border buyouts or the natural log of one plus the number of countries in which the investor executed buyouts over the previous two years, we find that those variables are never significant (not reported). The latter results thus provide further support for the idea that co-investors are selected based upon their country-specific expertise rather than upon their cross-border experience in general. Lastly, all results prove robust after adding the main effects of the lead-financier experience variables to the regression models, which are not significant at conventional levels (not shown).

In line with Lazarsfeld and Merton's (1954) homophily theory, our results indicate that lead financiers favor syndicate partners who are similar to themselves in terms of cognition and status. COGNITIVE SIMILARITY indeed bears a significant positive effect on SELECTED. Results are robust when utilizing the ratio of the investor's age and the lead financier's age, with the lower of these two numbers included in the numerator (not reported). Likewise, STATUS SIMILARITY has a positive and significant influence. In robustness checks, we use alternative centrality variables from the social network literature, such as (1) degree centrality, (2) betweenness centrality, and (3) closeness centrality (see the Appendix) to capture investor centrality. Results prove robust. Results also remain valid when COGNITIVE (STATUS) SIMILARITY is calculated as (1) the absolute value of the difference between an investor's cognition (status) and that of the lead financier, and (2) the coefficient of variation of an investor's cognition (status) and that of the lead financier (not reported). As an extra test, we replace STATUS SIMILARITY by a dummy variable that equals one if the potential syndicate partner has a more central position in the buyout network than the lead financier, and zero otherwise (not shown). This extra test allows exploring whether lead financiers just prefer to cooperate with higher-status investors, for example to enhance their own status as an investor's standing is influenced by the status of his partners (Gulati and Gargiulo, 1999). As the

dummy is never significant, we find no confirmation for this alternative mechanism explaining network formation in European buyout syndicates.

As regards the control variables, we note that INVESTOR EXPERIENCE is never significant, thereby rejecting the idea that lead financiers simply prefer syndicate partners with a lot of buyout experience. Next, we do detect a positive and significant coefficient on INVESTOR SIZE, suggesting that lead financiers favor co-investors with a larger amount of assets under management. However, the size of the lead financier (LEAD SIZE) is never significant. Likewise, COMPETITION is never significant, indicating that hot versus cold market conditions in the buyout industry bear no major influence on partnering choices. Results also prove robust after taking into account that equity left over in one year could be transferred to subsequent years by measuring COMPETITION over a two-year window (not reported). Finally, we calculate COMPETITION as the one-year lagged number of IPOs in the corresponding country, again finding that it is not related to SELECTED (not shown).

Column 6 reports the results of the two-stage Heckman (1979) model that corrects for a potential sample selection bias and thus includes the inverse Mills ratio (LAMBDA) from the first-step regression. To implement the Heckman (1979) correction, we first run a logistic regression model explaining the incidence of syndication, based on the findings of Meuleman *et al*. (2009b) and Huyghebaert and Priem (2014). We use the data on the population of European buyouts for this purpose. Table 6 reports the results of the first-step regression. The results of the second-step regression, which are reported in Table 5, column 6, reveal that LAMBDA is not significant. Also, our earlier inferences and conclusions turn out to be highly robust once we control for a potential sample selection bias.

In sum, we find overwhelming support for Uzzi's (1997) arguments that the need to strengthen the depth as well as the breath of the investor network matters to explain the partnering choices in European buyout syndicates. Our results are also much richer than those of Meuleman *et al*. (2010). However, the latter authors focus on a specific subcategory of buyouts, that is, management buyouts, where the risk of the deal could be lower, exactly because of the strong involvement and commitment of the target management. Then, it does not come as much as a surprise that they find only limited empirical support for investor-selection decisions being related to variables capturing complementarity in terms of information and skills and similarity in terms of cognition and status. Yet, they do find that prior relationships matter, and even more so in a context where vertical agency problems with the portfolio firm and horizontal agency problems with other investors in the buyout syndicate could be substantial.

Table 6 Determinants of the incidence of syndication (first-stage regression)

	Pred. sign	*(1)*
Intercept		–4.8420***
		(<0.0001)
Target characteristics		
TARGET AGE	–	–0.0698
		(0.1401)
TARGET PPE	–	0.6230
		(0.1318)
TARGET Z-SCORE	–	–0.1811**
		(0.0170)
TARGET SIZE	+	0.1646***
		(<0.0001)
TARGET CIVIL	+	1.3462***
		(<0.0001)
Lead-financier characteristics		
LEAD LEGALEXP	–	–0.0202**
		(0.0213)
LEAD CULTEXP	–	–0.0098*
		(0.0636)
LEAD BUYOUTEXP	–	–0.2704***
		(0.0003)
LEAD SYNDICATIONEXP	+	0.8002***
		(<0.0001)
LEAD SIZE	+	0.0406
		(0.1195)
Conditions in the buyout market		
COMPETITION	+	–0.4006
		(0.2195)
Control variables		
CROSS-BORDER		0.8211***
		(<0.0001)
Nagelkerke R-square		0.252
LR statistic		227.104***
AIC		202.610
Number of observations		859

Notes: This table displays the results from a logistic regression model on the incidence of syndication for the population of 859 European buyout transactions in the period 1999–2009. SYNDICATION is the dependent variable and is a dummy variable that equals one if the buyout was syndicated, and zero otherwise. TARGET AGE is the natural log of one plus target age. TARGET PPE is the ratio of property, plant, and equipment to total assets. TARGET Z-SCORE is the Altman (1993) Z″-score for non-listed firms. TARGET SIZE is the natural log of target total assets. TARGET CIVIL is a dummy variable that equals one if the target is domiciled in a civil-law country, and zero otherwise. LEAD LEGALEXP is the natural log of one plus the number of buyouts the lead financier executed as a stand-alone, as a lead financier, or as a participant in a syndicate in a country with the same legal tradition (common-law as opposed to civil-law) as the target country over the last two years. LEAD CULTURALEXP is the Mitra and Golder (2002) cultural knowledge measure calculated for the lead financier over the last two years. LEAD BUYOUTEXP is the natural log of one plus the number of buyouts, executed as a stand-alone, as a lead financier, or as a participant in a syndicate over the last two years. LEAD SYNDICATIONEXP is the natural log of one plus the number of syndicated transactions in which the lead financier acted as a lead financier or as a participant over the last two years. LEAD SIZE is the natural log of the lead financier's total assets. COMPETITION is the ratio of the total amount of equity finance raised by buyout financiers minus the total amount of equity invested in buyouts in a country in a year divided by the average annual amount of equity invested over the sample period. CROSS-BORDER is a dummy variable that equals one if the target firm and the lead financier are domiciled in a different country, and zero otherwise. All explanatory target and lead-financier characteristics are measured at the end of the fiscal year prior to the buyout and are winsorized at 5%–95% to remove extreme values in either tail of the distribution. We follow Chiplin *et al*. (1997) and bootstrap all regression models. *p*-values are reported between parentheses.

*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$.

Additional robustness checks

First, the independence assumption of the binomial logit model could be violated, as our sample includes multiple observations per buyout. The reason is that for every target firm and corresponding lead financier in the sample, there are as many observations in the dataset as potential syndicate partners in the investor opportunity set. A possible interdependence across observations because of target and lead-financier characteristics that do not change from one observation to another could lead to an underestimation of the standard errors. We therefore cluster all standard errors by the target company to allow for target-specific effects. Likewise, we cluster all standard errors by the lead financier. We also run generalized estimating equations (GEE), using generalized least squares in each step of the Newton-Raphson algorithm. As a further robustness check, we two-way cluster the standard errors by target firm and lead financier. Results always prove robust.

Second, the logistic regressions might underestimate the probability that SELECTED equals one because of the low average value of SELECTED in the sample (< 0.5%). According to King and Zeng (2001), a case-control design can be used to deal with this problem, that is, using the data on all the selected partners and on a smaller but random subsample of non-selected investors. Hence, for every chosen participant, we randomly choose ten non-selected investors. The results from the conditional logistic regression, which also controls for clustering of the standard errors, prove robust, although *p*-values are slightly larger. Results are also robust when we randomly draw three or five non-selected investors from the investor opportunity set. Next, we run the logistic regressions after restricting the investor opportunity set based on qualitative criteria, as lead financiers may not consider the entire population of investors when reflecting on a suitable syndicate partner. For this purpose, we follow Chung *et al*. (2000), Sorenson and Stuart (2008), and Meuleman *et al*. (2010) by limiting the investor opportunity set to investors who invested in another syndicate in the previous year. Results prove qualitatively similar, although *p*-values are now somewhat larger, thereby rendering INDIRECT EXPERIENCE insignificant. In addition, we reduced the investor opportunity set to investors who were involved in at least one (or five) transactions over the sample period. The results of those extra regressions lose somewhat in terms of statistical significance compared to those reported in Table 5, yet mostly because of the multicollinearity problems among the investor knowledge variables that now arise. In sum, when we assume that lead financiers only consider the more active investors as potential syndicate partners, our results become somewhat less clear-cut.

Finally, we examine whether partner-selection decisions are significantly different in hot buyout markets (2005–2008), when buyout financiers had excess equity finance, versus in cold buyout markets (1993–2003 and 2009). We find that investor characteristics have a similar effect on SELECTED in both subsamples, except for COGNITIVE SIMILARITY and STATUS SIMILARITY, which are no longer significant at conventional levels. Arguably, market conditions do not bear a substantial influence on partnering choices in European buyout syndicates. This finding is also in line with our earlier (and insignificant) results for COMPETITION in Table 5.

Subsample analyses based on target-company risk

Table 7 reports the results from the logistic regression analyses for several subsamples, based upon the level of target adverse-selection risk, target moral-hazard risk, and target default risk. Columns 1 and 2 show the regression output for the subsample of buyouts where TARGET AGE is larger than the 67th percentile, whereas columns 3 and 4 relate to the subsample of deals where TARGET AGE is smaller than the 33th percentile. Next, the results reported in columns 5 and 6 (7 and 8) relate to the subsample of deals with a high (low) value for TARGET PPE. Finally, the results displayed in columns 9 and 10 (11 and 12) apply to the buyouts with a high (low) TARGET Z-SCORE.[12] A cross-tabulation of these classifications reveals that buyouts are not consistently assigned to the same risk group (not reported). Indeed, only 5 (20) deals are always assigned to the low (high) risk group, across all three definitions of target risk. This finding is not surprising, as the correlation between our various risk variables is small; the highest correlation arises between TARGET AGE and TARGET PPE ($\rho = 0.15$; *p*-value of 0.04).

The results in Table 7 show that the hypotheses derived from Coleman's (1988) network closure theory are mainly supported when lead financiers invest in risky target firms, which is when their need to rely on trustworthy partners likely is most urgent. First, we find that lead financiers favor syndicate partners with whom they developed a direct relationship, irrespective of the level of target adverse-selection risk. Yet, when adding an interaction term between DIRECT EXPERIENCE and TARGET AGE in the base model and estimating it for the full sample of 189,124 observations, we note that it is significantly negative (not shown). Arguably, lead financiers do prefer to cooperate with investors they consider trustworthy especially when target adverse-selection risk is high. Besides, Table 7 clearly reveals

[12]Extra analyses revealed that results are robust when splitting the sample upon the 25th and 75th percentiles, although *p*-values are somewhat larger. This probably can be related to the smaller sample size.

Table 7 Subsample analyses based on target-company risk

		Target adverse-selection risk				*Target moral-hazard risk*				*Target default risk*			
	Pred. sign	*low*	*low*	*high*	*high*	*low*	*low*	*high*	*high*	*low*	*low*	*high*	*high*
		(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*
Intercept		−9.6308***	−9.6673***	−10.8508***	−10.7739***	−8.6349***	−8.0698**	−11.9509***	−8.6246***	−8.7631***	−7.0829**	−10.5752**	−8.3868***
		(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(0.0300)	(<0.0001)	(<0.0001)	(<0.0001)	(0.0277)	(0.0176)	(<0.0001)
Investor characteristics													
DIRECT EXPERIENCE	+	0.1615**	0.6920***	5.2029***	6.3531***	−4.7658	−4.8498	5.9378***	6.0528***	−5.4502	−6.4848	5.0117***	4.9370***
		(0.0267)	(<0.0001)	(<0.0001)	(<0.0001)	(0.9927)	(0.9962)	(<0.0001)	(<0.0001)	(0.9922)	(0.9976)	(<0.0001)	(<0.0001)
INDIRECT EXPERIENCE	+	−3.5082	−8.2579	3.7848***	4.5496***	−4.8030	−5.7306	3.5465***	3.1903***	−6.4921	−6.8777	3.8410***	3.5857***
		(0.9894)	(0.9985)	(0.0013)	(0.0001)	(0.9962)	(0.9979)	(0.0025)	(0.0060)	(0.9948)	(0.9972)	(0.0004)	(0.0019)
INDUSTRY KNOWLEDGE	+	1.7937*	0.5850*	1.3606**	1.5767**	4.6204***	3.6990**	1.3179***	1.6947***	2.2076**	3.3656**	0.9529*	1.4104**
		(0.0665)	(0.0911)	(0.0290)	(0.0156)	(<0.0001)	(0.0175)	(0.0096)	(0.0026)	(0.0292)	(0.0288)	(0.0783)	(0.0133)
INDUSTRY KNOWLEDGE * LEAD INDEXP	−		2.8358		−3.9419		−3.0194		−2.6320		−9.9321		−1.7714
			(0.9989)		(0.2514)		(0.9967)		(0.3433)		(0.9703)		(0.4920)
LEGAL KNOWLEDGE	+	0.4966	0.4959	0.6374*	0.9313**	0.0669	0.6933	0.7816***	0.9913***	0.7784*	0.9649**	0.7386***	0.9708***
		(0.2432)	(0.5456)	(0.0815)	(0.0201)	(0.8851)	(0.3505)	(0.0094)	(0.0053)	(0.0958)	(0.0232)	(0.0098)	(0.0034)
LEGAL KNOWLEDGE * LEAD LEGALEXP	−		−0.6043		−0.6650		−1.3112		−0.4549**		−1.6875		−1.0421***
			(0.5404)		(0.1005)		(0.1695)		(0.0325)		(0.1263)		(0.0027)
CULTURAL KNOWLEDGE	+	0.5478	1.0884	1.3831***	1.1706***	−0.2844	−1.4785	1.4665***	0.0564***	−0.7498	−1.3749	0.5256*	0.0539***
		(0.3464)	(0.2201)	(0.0013)	(0.0066)	(0.6614)	(0.1682)	(0.0001)	(<0.0001)	(0.2472)	(0.1510)	(0.0643)	(<0.0001)
CULTURAL KNOWLEDGE * LEAD CULTEXP	−		−0.1240		−0.0159*		−0.3587		−0.0178*		−0.5813		−0.0204**
			(0.6629)		(0.0665)		(0.1227)		(0.0748)		(0.2107)		(0.0205)
COGNITIVE SIMILARITY	+	0.8704	1.8257**	1.0175**	0.6112*	0.6525	1.7344	0.4759	0.7248*	0.9086	1.3605	0.8062**	0.9525**
		(0.1084)	(0.0332)	(0.0269)	(0.0870)	(0.2768)	(0.1350)	(0.3156)	(0.0760)	(0.1250)	(0.1631)	(0.0320)	(0.0121)
STATUS SIMILARITY	+	1.3886***	2.4290***	0.5740	1.0256	0.5787	0.8244	0.5675	0.6091	0.7510	1.2203*	0.6338**	0.6645**
		(0.0022)	(0.0027)	(0.1006)	(0.1008)	(0.2404)	(0.3270)	(0.2291)	(0.2437)	(0.1300)	(0.0977)	(0.0296)	(0.0238)
Control variables													
INVESTOR EXPERIENCE		0.1996	0.3427	−0.0250	−0.0335	0.3565	0.6614	−0.2566	−0.1592	−0.0440	0.3167	−0.0741	0.1319
		(0.6188)	(0.5377)	(0.9449)	(0.9262)	(0.3946)	(0.3195)	(0.3795)	(0.6302)	(0.9217)	(0.5974)	(0.7895)	(0.6670)
INVESTOR SIZE		0.1615**	0.1564	0.0437	0.0372	0.0951	0.0018*	0.1119**	0.1059**	0.1102*	0.1623	0.0789*	0.0746
		(0.0267)	(0.1584)	(0.4509)	(0.5207)	(0.2480)	(0.0889)	(0.0306)	(0.0426)	(0.0651)	(0.1728)	(0.0978)	(0.1209)
LEAD SIZE		0.0039	0.0237	0.0432	0.0886	0.0495	0.1558	0.0979	0.1114	0.1096	−0.0144	0.1136*	0.1063
		(0.9682)	(0.8896)	(0.5909)	(0.2953)	(0.6834)	(0.3845)	(0.1380)	(0.1045)	(0.3211)	(0.9220)	(0.0738)	(0.1006)
COMPETITION		−0.0008	0.0345	−0.0246	−0.0378	0.0300	0.0984	−0.0197	−0.0170	0.0220	0.1170	−0.0581	−0.0701
		(0.9832)	(0.6315)	(0.5705)	(0.3853)	(0.6966)	(0.4290)	(0.5556)	(0.6244)	(0.7003)	(0.2705)	(0.1736)	(0.1369)
Nagelkerke R–square		0.0808	0.1548	0.1739	0.1852	0.0512	0.1037	0.1835	0.1572	0.0510	0.1194	0.1591	0.1446
LR statistic		42.847***	37.720***	62.077***	71.237***	22.726**	17.192*	91.616***	169.301***	21.935**	24.506*	73.592***	179.236***
AIC		514.923	234.557	805.289	799.187	447.457	179.450	1,034.583	942.167	435.288	214.134	1,201.437	1,095.806
Number of observations		39,512	39,512	45,429	45,429	38,516	38,516	38,026	38,026	30,301	30,301	30,563	30,563

Notes: This table displays the results from the logistic regression to explain the partner–selection decision for the subsamples of deals that involve target firms with low and high risk, respectively. Target firms for which TARGET AGE is larger (smaller) than the 67th (33th) percentile are considered as firms with low (high) adverse–selection risk. Target firms for which TARGET PPE is larger (smaller) than the 67th (33th) percentile are considered as firms with low (high) moral–hazard risk. Target firms for which TARGET Z–SCORE is larger (smaller) than the 67th (33th) percentile are considered as firms with low (high) default risk. Table 2 presents a definition of all variables. All explanatory variables are measured at fiscal year–end before the buyout and are winsorized at 5%–95% to remove extreme values in either tail of the distribution. *p*–values are reported between parentheses.
*p <0.10. **p <0.05. ***p <0.01.

that lead financiers have a strong preference to work with direct partners only in the case where target moral-hazard risk and target default risk is substantial. Together, those results are in line with our presumption that direct partners are particularly attractive for deals involving risky target firms. We also find evidence that lead financiers tend to involve indirect partners only for deals with extensive target adverse-selection risk, target moral-hazard risk, and target default risk.

Next, we detect that lead financiers tend to select partners with complementary information and skills especially when target risk is substantial. This is exactly when we expect the ideas derived from Burt's (1992) structural holes theory to apply most. LEGAL KNOWLEDGE and CULTURAL KNOWLEDGE are indeed only significant for the subsample of risky buyouts, particularly when considering target adverse-selection risk and target moral-hazard risk. Likewise, the interactions of these institutional variables with the corresponding expertise of the lead financier are only significantly negative for these subsamples. Arguably, investors with extensive knowledge about the target-country institutional environment are perceived as being most helpful in target screening, monitoring, and value adding when the target firm exhibits substantial risk. Besides, the syndicate partner's expertise likely is most valuable when lead financiers themselves have only limited institutional knowledge. Nonetheless, LEGAL KNOWLEDGE also has a significant positive impact on SELECTED when target default risk is low. As regards industry-specific information and skills, we find that INDUSTRY KNOWLEDGE has a significant positive effect on SELECTED, irrespective of the level of target risk. Although this result is not providing empirical support for our hypotheses, it is in line with our earlier findings in Tables 3 and 5, revealing that buyout financiers are generalist investors who prefer to involve co-investors capable of introducing industry-specific knowledge into the syndicate.

Finally, we find no compelling evidence that lead financiers favor syndicate partners with a similar level of buyout experience (COGNITIVE SIMILARITY) or a similar status (STATUS SIMILARITY) especially in case the target firm exhibits severe adverse-selection, moral-hazard, or default risk. Arguably, lead financiers are not particularly concerned about structuring the buyout syndicate so as to minimize misunderstandings and disagreements in case target risk is substantial.

Relative importance of investor characteristics

In this subsection, we examine the relative importance of each proposed investor characteristic for the formation of buyout syndicates in Europe. While we indeed have found empirical support for the idea that Coleman's (1988) network closure theory, Burt's (1992) structural holes theory, and Lazarsfeld and Merton's (1954) homophily theory are complementary, as they all can help to explain how networks of relationships are formed and maintained through partnering choices, we have not yet answered the question which of these theories dominates in terms of economic significance and, thus, can best explain buyout partnering choices. We also implement the extra analyses in this section for the various subsamples, thereby exploring again how target risk affects the conclusions that arise from examining the full sample. Table 8 displays the marginal effects (in percentage points) for the various explanatory variables, that is, the estimated marginal change in the probability that SELECTED equals one caused by a 1% change in the corresponding test variable, evaluated at the sample mean for the other explanatory variables. We obtain similar results when examining the marginal change in the odds that SELECTED equals one engendered by a one standard deviation change in the test variables and when investigating the marginal predictive power of each investor characteristic (not reported).

An investor's already-established relationships prove the most influential characteristic for selection, followed by the level of his target industry and institutional knowledge, and lastly by his similarity in terms of cognition and status. The output in Table 8 thus suggests that the inferences from Coleman's (1988) network closure theory matter most in economic terms. As the economic significance of INDIRECT EXPERIENCE (19.93%) is smaller than that of DIRECT EXPERIENCE (32.85%), we further conclude that lead financiers consider their own personal ties with a particular investor as a better indicator of the latter's trustworthiness than the ties with shared investors. The above conclusions also arise when examining the subsamples of syndicated buyouts with substantial target adverse-selection risk, target moral-hazard risk, and target default risk. Conversely, when target risk is low, our proposed investor characteristics are neither statistically nor economically significant.

Economic consequences of partner-selection decisions for target firms

Finally, we wish to examine whether partner-selection decisions have genuine economic consequences for target firms. Specifically, we aim to determine whether involving a co-investor who is (1) familiar, either directly or indirectly, (2) capable of providing complementary information and management skills, and (3) similar in terms of cognition and status, has a positive effect on the post-buyout performance of the target firm. The idea is that when a syndicate is structured so as to improve its functioning and effectiveness, this should ultimately be reflected in how the buyout affects the performance of the target firm. In these analyses, we

Table 8 Marginal effects of participant characteristics

	Pred. sign	*Full sample*	*Low target adverse-selection risk*	*High target adverse-selection risk*	*Low target Moral-hazard risk*	*High target Moral-hazard risk*	*Low target default risk*	*High target default risk*
Network closure theory								
DIRECT EXPERIENCE	+	0.3285***	0.0537**	0.2713***	0.3012	0.3263***	0.1469	0.2847***
INDIRECT EXPERIENCE	+	0.1993***	0.1779	0.2017***	0.1396	0.1953***	0.1985	0.2187***
Structural holes theory								
INDUSTRY KNOWLEDGE	+	0.1304***	0.0152*	0.0729**	0.0115***	0.0728***	0.0093*	0.0543*
LEGAL KNOWLEDGE	+	0.0507***	0.0307	0.0539*	0.0045	0.0512***	0.0072	0.0526***
CULTURAL KNOWLEDGE	+	0.0436*	0.0063	0.0712***	0.0014	0.0804***	0.0066	0.0392*
Homophily theory								
COGNITIVE SIMILARITY	+	0.0415**	0.0081**	0.0213**	0.0051	0.0258	0.0089	0.0455
STATUS SIMILARITY	+	0.0382***	0.0148***	0.0252	0.0043	0.0302	0.0071	0.0351**
Control variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nagelkerke R–square		0.1574	0.0808	0.1739	0.0512	0.1835	0.0510	0.1591
LR statistic		116.225***	42.847***	62.077***	22.767**	91.616***	21.935**	73.592***
AIC		1,958.153	514.923	805.289	447.457	1,034.583	437.288	1,201.437
Number of observations		189,124	39,512	45,429	38,516	38,026	30,301	30,563

Notes: This table displays the marginal effects of the investor characteristics (in percentage points) on the probability that SELECTED equals one, evaluated at the mean of the other explanatory variables. The table shows results for the full sample of European syndicated buyouts and for the subsamples based on our various measures of target risk. Target firms for which TARGET AGE is smaller (higher) than the 33th (67th) percentile are considered as firms with high (low) adverse–selection risk. Target firms for which TARGET PPE is smaller (higher) than the 33th (67th) percentile are considered as firms with high (low) moral-hazard risk. Target firms for which TARGET Z-SCORE is smaller (larger) than the 33th (67th) percentile are considered as firms with high (low) default risk. Table 2 presents a definition of all variables. All explanatory variables are measured at fiscal year-end before the buyout and are winsorized at 5%–95% to remove extreme values in either tail of the distribution. *p*-values are reported between parentheses.

*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$.

control for the characteristics of the target firm and the lead financier that might also influence the post-buyout change in target-firm performance, building on the research by Cressy *et al*. (2007), Hochberg *et al*. (2007), and Meuleman *et al*. (2009a).

To examine the above ideas, we run ordinary least squares (OLS) regressions on the change in the target ratio of earnings before interest, taxes, depreciation, and amortization (EBITDA) to sales following the buyout. As EBITDA is calculated before interest expenses, the effects of partnering choices on the target's operating performance can be measured quite accurately, thereby disregarding any financial engineering effects. Also, EBITDA is more difficult to manipulate in the annual accounts than is either earnings before interest and taxes (EBIT) or net income. Besides, we run OLS regressions on the change in target sales growth after the buyout. We examine the change in both variables for the window [–1, +3], with year 0 being the year of the buyout. This window allows accounting for the time often needed before buyouts start to generate value. Our regressions thus include only one observation per target firm. As changes in industry conditions could affect the changes in firm profitability and growth, we report results after subtracting the median change in the corresponding four-digit SIC industry. Yet, results are qualitatively similar when no industry correction is made (not reported). Finally, we account for a potential sample selection bias. Our analyses could indeed suffer from an upward selection bias, as we only examine syndicated buyouts. We again rely on the results from the two-stage Heckman (1979) model in Table 6 to account for this potential sample selection effect. So, we add the inverse Mills ratio (LAMBDA) from the first-step regression to the structural equation.

Table 9, Panel A displays our findings for the impact of investor characteristics on the post-buyout change in target EBITDA/SALES, whereas Panel B reports the results for the change in target SALES GROWTH. Overall, we find no strong support for the idea that working with a familiar co-investor generates strong beneficial effects for the performance of target firms. While DIRECT EXPERIENCE has a positive and significant effect on the change in EBITDA/SALES, its impact on the change in SALES GROWTH is not significant. Moreover, the influence of INDIRECT EXPERIENCE on the change in target-firm performance is never significant. Conversely, syndicating with a partner that has considerable knowledge as to the target industry does significantly add to target profitability as well as to target sales growth. In addition, we find evidence that the syndicate partner's knowledge of the legal context positively influences target profitability as well as sales growth especially when the lead financier has only limited information about the target-country legal system. We obtain similar conclusions as regards the impact of CULTURAL KNOWLEDGE in columns 3 and 6. Lastly, we conclude that a syndicate that is structured so as to minimize the number of misunderstandings and disagreements can further improve the post-buyout performance of target firms. Indeed, COGNITIVE SIMILARITY and STATUS SIMILARITY have a positive and significant effect on the change in target profitability as well as sales growth after the buyout.

Regarding the control variables, which were selected based upon the research by Cressy *et al*. (2007), Hochberg *et al*. (2007), and Meuleman *et al*. (2009a), we find that the one-year lagged ratio of EBITDA to sales (LAGGED PERFORMANCE) has a negative and significant impact on the change in target profitability. A similar result arises when examining the change in target sales growth. We therefore conclude that further improving the performance of target firms that are already highly profitable and fast growing is more difficult. The MBO (management buyout) dummy, which equals one for management buyouts, has a significant negative effect on the change in EBITDA/SALES as well as the change in SALES GROWTH. Extra (non-reported) analyses reveal that firms for which the target management participates in the buyout achieved better pre-buyout performance. In line with our findings on LAGGED PERFORMANCE, it may thus be more difficult to further improve firm performance for those management buyouts. Next, CROSS-BORDER has a significant negative impact, thereby suggesting that value creation is more difficult to achieve when target firms are located abroad. Although we find no robust influence of LEAD BUYOUTEXP on the change in target profitability, our results do reveal that experienced lead financiers are better able to spur target sales growth. Finally, when deals are initiated in times of easy investor access to equity finance (COMPETITION), improvements in target performance seem more difficult to realize. This result thus suggests that lower-quality deals are accepted in times of easy access to finance. Finally, LAMBDA is never significant, thereby indicating that a sample selection bias is unlikely.[13]

Conclusions

In this paper, we empirically investigate how lead financiers select their co-investors in buyout syndicates. For this purpose, we focus on buyout syndicates in Europe, which mostly involve non-listed and risky target firms and which involve a considerable number of cross-

[13]As a further test, we also examined the influence of TARGET LISTED, which is a dummy variable that equals one for a public-to-private transaction, and zero otherwise, but failed to find a significant influence on the change in target performance, possibly because of the very small number of going-private deals in our sample (N = 13).

Table 9 The influence of partner–selection decisions on post–buyout target profitability and growth

	Panel A: EBITDA/SALES [–1,+3]			*Panel B: SALES GROWTH [–1,+3]*		
	(1)	*(2)*	*(3) Heckman*	*(4)*	*(5)*	*(6) Heckman*
Intercept	0.0136	0.0428	0.0409**	–0.6147***	–0.4664*	–0.1107
	(0.7885)	(0.6288)	(0.0165)	(0.0001)	(0.0762)	(0.8716)
Investor characteristics						
DIRECT EXPERIENCE	0.0550**	0.0310*	0.0614**	0.0115	–0.0422	–0.1684
	(0.0463)	(0.0645)	(0.0207)	(0.9018)	(0.7342)	(0.7156)
INDIRECT EXPERIENCE	0.0001	0.0001	0.0001	–1.1894	0.0001	0.0001
	(0.9912)	(0.9941)	(0.9841)	(0.8903)	(0.9814)	(0.9841)
INDUSTRY KNOWLEDGE	0.0804**	0.0514*	0.0914*	0.6736***	0.6305**	0.4168***
	(0.0182)	(0.0607)	(0.0809)	(0.0002)	(0.0128)	(0.0001)
INDUSTRY KNOWLEDGE		–0.0001	–0.0016		0.0001	–0.0001
* LEAD INDEXP		(0.9816)	(0.8164)		(0.8416)	(0.7896)
LEGAL KNOWLEDGE	0.0319***	0.1055***	0.1568***	0.0714**	0.0469***	0.2167***
	(0.0024)	(<0.0001)	(0.0001)	(0.0246)	(<0.0001)	(<0.0001)
LEGAL KNOWLEDGE *		–0.1635***	–0.0615***		–0.4639***	–0.4116**
LEAD LEGALEXP		(<0.0001)	(<0.0001)		(<0.0001)	(0.0465)
CULTURAL KNOWLEDGE	0.0149	0.0044	0.0315*	–0.0231	0.0690	0.2334**
	(0.1573)	(0.1965)	(0.0951)	(0.4899)	(0.1771)	(0.0204)
CULTURAL KNOWLEDGE		–0.0126	–0.0615***		–0.0572**	–0.0571**
* LEAD CULTEXP		(0.1191)	(<0.0001)		(0.0138)	(0.0109)
COGNITIVE SIMILARITY	0.0809***	0.0369	0.0061	0.1109**	0.1997***	0.1657**
	(<0.0001)	(0.1015)	(0.1016)	(0.0220)	(0.0025)	(0.0274)
STATUS SIMILARITY	0.0329**	0.0532**	0.1657***	0.0374*	0.2846***	0.0741*
	(0.0118)	(0.0200)	(<0.0001)	(0.0676)	(<0.0001)	(0.0784)
Control variables						
LAGGED PERFORMANCE	–0.5584***	–0.5281***	–0.3515***	–0.0502***	–0.0517***	–0.4156***
	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
TARGET SIZE	0.0214***	–0.0003	0.0294	0.0310***	0.0170	0.0151
	(<0.0001)	(0.5576)	(0.1136)	(0.0020)	(0.2539)	(0.1841)
TARGET MBO	–0.0145	–0.0606***	–0.0164*	–0.0827**	–0.3373***	–0.0167**
	(0.1653)	(0.0003)	(0.0807)	(0.0110)	(<0.0001)	(0.0451)
TARGET CIVIL	–0.0465**	–0.0519	–0.1761	0.0663	0.0107	–0.2416
	(0.0243)	(0.3349)	(0.1197)	(0.2697)	(0.9476)	(0.8154)
CROSS–BORDER	–0.0645***	–0.0583***	–0.2695***	–0.0244**	–0.2120***	–0.2160***
	(<0.0001)	(0.0005)	(<0.0001)	(0.0480)	(<0.0001)	(0.0001)
LEAD SIZE	0.0056	0.0099	–0.0176	0.0077	0.0044	0.6145
	(0.1006)	(0.1002)	(0.2614)	(0.1312)	(0.5587)	(0.7155)
LEAD BUYOUTEXP	0.0061	0.1384	0.0164	0.0559***	0.1357**	0.1671**
	(0.1000)	(0.1004)	(0.3154)	(0.0084)	(0.0102)	(0.0304)
COMPETITION	–0.0397***	–0.0483***	–0.0004*	–0.0394*	–0.0113*	–0.0461**
	(0.0002)	(0.0038)	(0.0794)	(0.0648)	(0.0816)	(0.0146)
LAMBDA			–0.0579			–0.0871
			(0.1469)			(0.1497)
Adjusted R–square	0.4307	0.5461	0.4795	0.3912	0.3856	0.4267
Number of observations	380	380	380	407	407	407

Notes: This table displays the OLS regression results on the post–buyout performance of target firms. The dependent variable in Panel A is the industry–adjusted change in EBITDA/SALES from one year before to three years after the buyout. EBITDA/SALES is the ratio of EBITDA to sales. The dependent variable in Panel B is the industry–adjusted change in SALES GROWTH, i.e. the continuously compounded growth rate in sales, measured over the same window. Table 2 presents a definition of target–firm and investor characteristics. Next, LAGGED PERFORMANCE is the value of EBITDA/SALES (SALES GROWTH) in the year before the buyout in Panel A (Panel B). TARGET SIZE is the natural log of target total assets. TARGET MBO is a dummy variable that equals one for management buyouts, and zero otherwise. TARGET CIVIL is a dummy variable that equals one if the target company is domiciled in a civil-law country, and zero otherwise. CROSS–BORDER is a dummy variable that equals one if the target firm and the lead financier are domiciled in a different country, and zero otherwise. LEAD BUYOUTEXP is the natural log of the number of buyouts executed by the lead financier as a stand-alone, as a lead financier, or as a participant in a syndicate over the last two years. LAMBDA is the inverse Mills ratio (Heckman, 1979). All explanatory variables are measured at the end of the fiscal year prior to the transaction and are winsorized at 5%–95. We follow Chiplin *et al*. (1997) and bootstrap all regression models. *p*-values are reported between parentheses.
*p <0.10. **p <0.05. ***p <0.01.

border transactions. Our rich dataset is particularly suited to combine and test the insights that can be derived from Coleman's (1988) network closure theory, Burt's (1992) structural holes theory, and Lazarsfeld and Merton's (1954) homophily theory. We indeed argue and show that those theories are not contradictory, but rather complementary and can help to explain how lead financiers deal with their simultaneous need for depth (i.e., strengthen their existing ties) and breath (i.e., develop new relationships) in their investor network. Moreover, our results are much richer than those of Meuleman *et al*. (2010), which can be explained by the fact that those scholars examine a specific subcategory of buyouts, namely, management buyouts, where the risk of the deal could be lower, exactly because of the strong involvement and commitment of target management.

First, our results reveal that lead financiers prefer syndicate partners with whom they developed a prior relationship, either directly or indirectly. As those familiar investors can be considered as more trustworthy, our findings are in line with Coleman's (1988) network closure theory. In addition, lead financiers prefer co-investors with expertise in the target industry. Lead financiers also favor partners with knowledge about the target-country legal tradition and culture, especially when having themselves only limited knowledge about the target-country institutional environment. The latter findings thus also provide empirical support for Burt's (1992) structural holes theory. Finally, we find evidence that lead financiers choose partners with a similar level of cognition and status. In line with Lazarsfeld and Merton's (1954) homophily theory, cooperation among investors likely can be more effective when investors are more alike. Overall, our findings point out that aspirant investors should fulfill three key conditions in order to maximize their odds of being invited to join a buyout syndicate: (1) they should have built relationships with other buyout financiers, (2) they should be capable of providing complementary information and management skills, and (3) they should be particularly open to investors with a similar level of cognition and status. We further infer that an investor's already-established relationships are the most influential determinant for selection. The above findings appear to be largely driven by the risky buyouts in the sample. Specifically, the ideas derived from the work by Coleman (1988) and Burt (1992) mainly apply to buyouts targeting risky companies. The latter findings thus also imply that lead financiers are more inclined to expand their network in a setting of low risk/uncertainty, in line with the idea that interfirm networks evolve in a particular context.

While our study provides compelling evidence about the investor network and experience characteristics that matter when lead financiers select their syndicate partners, we also demonstrate that those partnering choices have genuine economic consequences for target firms. Specifically, lead financiers can add more value to portfolio firms by selecting familiar syndicate partners, partners with complementary information and management skills, and partners who are similar in terms of cognition and status. In this respect, we find that expertise as regards the target industry and target-country institutions has the largest beneficial effect on target performance subsequent to the buyout investment.

The most important contribution of our paper to theory is that future theoretical frameworks cannot just focus on the conditions that incite lead financiers to prefer working with familiar partners or rather induce them to establish new relationships. Rather, we have clearly shown that lead financiers have a simultaneous need to increase the depth as well as the breath of their network, in line with Uzzi's (1997) embeddedness paradox. One should thus also no longer see theories focusing on firms' wish to nurture existing relationships as being in contradiction with theories focusing on firms' wish to build new ties. Interestingly, our study also provides relevant insights for theories focusing on network dynamics, while a lot of prior research has stressed inertia in firms' networks. Specifically, the results in our paper delineate the conditions under which existing social networks are less important for partner selection, hence providing aspirant investors with an opportunity to expand their network. The results in our paper can also help to understand why the markets for buyout syndication in Europe are still very regional in nature to date. Yet the number of cross-border deals nonetheless is gradually increasing over time. The latter insights are important for practitioners, too.

Another important implication for practitioners that arises from our study is that a well-structured buyout syndicate might be able to achieve a superior return on investment. We therefore recommend buyout financiers to think more carefully about whether their partnering choices are economically optimal, as lead financiers now seem to rely mostly on their earlier-established relationships to select their partners, while we demonstrate that complementary information and skills have the largest beneficial effects on target-firm performance following the buyout investment. Those findings are also important for institutional investors acting as limited partner in a buyout fund; they emphasize that the buyout investor's network is a factor to consider when selecting the buyout fund to participate in.

One shortcoming of our study is that we can only observe the outcome of a buyout syndicate. We cannot separately study the invitation decision of the lead financier and the acceptance/rejection decision of the invited investor. Another limitation of the study is that we have focused on only one aspect of the decision-making process in buyout syndicates, in particular the selection of syndicate partners. So, we have not examined the stake held by each investor in the buyout syndicate.

Moreover, we did not analyze each of these investors' role in the governance of the buyout target, for example through board representation. Future research might also wish to delve deeper into the distinction between group-level effects versus individual-level effects, that is, separate the effects of the investment company itself from those of its individual employees (see also Carbonaro, 1999). Besides, a number of our current measures remain quite rude; for example, we could measure the number of prior cooperations, but not how successful those have been. Future research might try to deal with the above-pointed out shortcomings. Other opportunities for future research might arise from examining when joint bidding for a target firm (i.e., in a club deal) is to be preferred over a deal structure in which one financier takes the lead in setting up a buyout syndicate. Also, it would be interesting to explore in more detail why the latter structure particularly emerged in Europe. A final avenue for future research seems to lie in a comparative study on the debt syndicates in buyout transactions. The selection of co-lenders in those debt syndicates might indeed be based on other criteria than the ones revealed by our study.

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Appendix: Network centrality measures

All network centrality variables used in this paper capture how 'central' an investor is in the buyout network and thus measure the relative importance of this investor among his peers. However, each measure differs in its definition of what it means to be 'central'. We calculate every variable with UCINET 6 (Borgatti *et al*., 2002), a software package developed for social network analysis. The calculation of every measure starts from the *adjacency matrix* **R**, which represents the relationships among investors. Consider a network consisting of three buyout financiers, I, J, and K, who have the following history of syndication over the last two years:

Syndicate 1	I (lead)	J (participant)
Syndicate 2	I (lead)	J (participant)
Syndicate 3	I (lead)	K (participant)
Syndicate 4	J (lead)	I (participant)

The corresponding square g × g (i.e., 3 × 3) adjacency matrix **R**, where the rows and columns refer to the syndicate members, then looks as follows:

Lead financier	*Participant*		
	I	*J*	*K*
I	–	1	1
J	1	–	0
K	1	0	–

Each cell in this matrix – except for the cells on the diagonal, which are undefined – is coded as either one or zero, indicating either the presence or the absence of a prior syndication relationship, respectively. This matrix thus does not account for whether the investor was either the lead financier or a participant investor in those previous buyout syndicates. Centrality measures are usually based on dichotomous matrices rather than on value matrices. For our example, syndicates 2 and 4 thus do not change the network position of investors I and J, as these investors have already worked together in syndi-

cate 1. By relying on dichotomous matrices, our centrality variables are thus also sufficiently distinct from the variables DIRECT EXPERIENCE and INDIRECT EXPERIENCE.

Degree centrality represents the number of unique partners a buyout financier had relationships with over the last two years. Consider the example of buyout financier J. We calculate J's degree centrality score by summing up that investor's row values r_{iJ} in **R**. Thereby, r_{iJ} is an element of **R,** having a value of either one or zero, depending upon whether a particular financier i in the buyout network and investor J have cooperated over the previous two years. The degree centrality of investor J is then calculated as:

$$\text{degree} = \sum_{i=1}^{g} r_{iJ} \tag{A1}$$

where the sum is taken over all $i \neq$ J. To account for the fact that the above degree centrality score is affected by the size of the network (g), that is, total number of investors in the buyout network, this measure is subsequently normalized by dividing the obtained degree centrality value in (A1) by the maximum possible value in a network of size g, namely g–1, to ensure comparability across networks of different size. This correction is particularly important as the size of the buyout network can change over time, because of entry and exit of investors. This normalization is indeed important, as we calculate this centrality variable over a two-year moving window before each syndicated buyout in the sample. The normalized degree centrality variable then ranges from zero to one.

According to the Bonacich (1987) eigenvector centrality measure, central buyout investors are linked to many other investors, who in turn are linked to many others. Investors who have numerous prior direct or indirect partners themselves could thus still have a low status if their partners are not connected to many other investors. In contrast, investors with a more limited number of prior direct or indirect partners could still have a high standing if their partners are very well-connected. Investor J's eigenvector centrality score is thus positively affected by the number of his unique prior syndication partners (represented by i) as well as the eigenvector centrality score of those partners. Formally:

$$\begin{aligned}\text{eigenvector}(\alpha_J, \beta_J) &= \alpha \sum_{i=1}^{g} \beta^i \mathbf{R}^{i+1}\mathbf{1} \\ &= \alpha(\mathbf{I} - \beta\mathbf{R})^{-1}\mathbf{R}\mathbf{1}\end{aligned} \tag{A2}$$

where

$$\sum_{i=1}^{g} \beta^i \mathbf{R}^{i+1}\mathbf{1}$$

represents investor J's total number of relationships, either directly or indirectly. α is a scaling factor that normalizes the eigenvector centrality score to ensure comparability across networks of different size and has to be chosen such that:

$$\sqrt{\sum_{i=1}^{g} \text{eigenvector}(\alpha, \beta)^2} = g \tag{A3}$$

β is a weighting factor and captures the extent to which investor J's eigenvector centrality is a function of the eigenvector centrality scores of the investors i to whom he is connected. To achieve convergence of the algorithm that calculates the eigenvector centrality variable, β has to be smaller than the absolute value of the reciprocal of the largest eigenvalue of **R**. A generally accepted value for β is 75% of the reciprocal of **R**'s largest eigenvalue (e.g., Sorenson and Stuart, 2008). **1** is a column vector of ones and **I** represents the identity matrix.

Betweenness centrality measures the frequency with which a buyout investor is located on the shortest path connecting investors; these paths are indicated as nodes in a graph representing the buyout network. Prior direct partners of investor J are considered as having a path length of one unit, while prior indirect partners have a path length of two units. Prior partners of an indirect syndicate partner have a path length of three units, etc. For a specific investor J, the betweenness centrality score is calculated as:

$$\text{betweenness} = \sum_{i<k} g_{ik}(J)/g_{ik} \tag{A4}$$

where $g_{ik}(J)$ represents the number of shortest paths between a lead investor i and a syndicate partner k that pass through investor J in the graph representing the buyout network and where g_{ik} represents the total number of shortest paths between investors i and k, regardless of whether those shortest paths pass through investor J. The shortest path is identified as the path with the smallest length; clearly, there could be multiple paths between investors i and k that have the same length as that of the shortest path. $g_{ik}(J)/g_{ik}$ then represents the probability that investor J is located on the shortest path between investors i and k. Finally, the *betweenness centrality* score of investor J is simply the sum of those estimated probabilities over all possible combinations of investors in the buyout network not including investor J. As betweenness centrality depends on the size of the buyout network, it has to be standardized by dividing its value by the maximum number of realized paths between all investors in the buyout network not including investor J. Formally:

$$\text{betweenness} = \left(\sum_{i<k} g_{ik}(J)/g_{ik}\right) \Big/ [(g-1)(g-2)/2] \tag{A5}$$

To find the shortest path between two investors i and k, the power matrices have to be examined. The first power p for which the element r_{ik} is not zero represents the length of the shortest path. Mathematically:

$$\text{distance} = \min_p r_{ik}^p > 0 \tag{A6}$$

Closeness centrality measures how close an investor is located to all other investors in the buyout network. The closeness centrality score of investor J is calculated by summing the length of the shortest paths between this financier J and all other investors i in the buyout network. Formally:

$$\text{closeness} = \left[\sum_{i=1}^{g} \text{distance}\right]^{-1} \tag{A7}$$

where the sum is taken over all $i \neq$ J. For an investor J who never syndicated before, and thus has a degree centrality score of zero, the shortest path to all other investors has a path length equal to infinity. As a result, the sum of distances for this financier is $+\infty$ and his closeness centrality score becomes zero in the limit. To compare this variable across networks of different size, the variable is again normalized. Mathematically:

$$\text{closeness} = (g-1) \Big/ \left[\sum_{i=1}^{g} \text{distance}\right] \tag{A8}$$