# An Investigation into the Educational Background of Private Equity Lead Partners: What is the Impact on Performance?

*Master Thesis U.S.E.*

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**Abstract**

This study investigates whether the educational background among lead partner teams (LPTs) of private equity (PE) funds affect buyout performance. In particular, I examine four potential channels throughout which educational characteristics may impact buyout performance: (i) levels of education, (ii) specialized certifications, (iii) combination of levels of education and specialized certifications, and (iv) educational profile. By using ordinary least squares (OLS) models and a sample of 263 worldwide buyouts and 597 involved PE lead partners during 1997-2015, I find no significant influence of levels of education and/or specialized certifications on buyout performance. This applies to either individual variables or their combined effects. The results suggest that other factors such as work experience, practical skills, cognitive intelligence and motivation may also influence performance, making it difficult to isolate the impact of education alone. Furthermore, this study reveals that compared to LPTs with a non-business background, the teams with a broader educational profile (defined as a background in business combined with a non-business background) tend to outperform. However, the question whether a broader educational profile among LPTs can positively affect buyout performance still remains open. In case more empirical evidence is found in this direction, PE firms could use this knowledge to guarantee that at least one PE partner in the LPT has a business background and one has a non-business background (this can be the same person) in order to enhance buyout performance. This would be of great relevance in a performance-driven industry such as PE.

**Keywords:** Buyout, Human Capital, Education, Performance, OLS

**JEL Codes:** G11, G15, G24, G34

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## List of Abbreviations

The following table specifies the meaning of abbreviations and acronyms used throughout this study, including the page on which each abbreviation is defined.

| Abbreviation | Meaning | Page |
| --- | --- | --- |
| CAGR | Compound Annual Growth Rate | 7 |
| EBITDA | Earnings Before Interest, Taxes, Depreciation and Amortization | 35 |
| EV | Enterprise Value | 18 |
| JD | Juris Doctor | 46 |
| LBO | Leveraged Buyout | 13 |
| LPT | Lead Partner Team | 6 |
| MBA | Master of Business Administration | 6 |
| MD | Doctor of Medicine | 46 |
| OLS | Ordinary Least Squares | 7 |
| PE | Private Equity | 6 |
| PEI 100 | Ranking of the 100 largest global PE firms | 48 |
| PHD | Doctor of Philosophy | 46 |
| UET | Upper Echelons Theory | 6 |

# 1. Introduction

This research paper investigates the role that the educational background of lead partner teams (LPTs) plays in predicting the performance of private equity (PE) funds. In particular, this study examines whether higher levels of education and/or specialized certifications among LPTs are positively associated with leveraged buyout performance. Additionally, this paper analyses whether a broader educational profile among LPTs is associated with higher performance.

The upper echelons theory (UET) establishes the groundwork to understanding why the demographics of top managers needs to be taken into account. According to UET, managers' actions are influenced by their personalized interpretations of strategic circumstances they encounter, and these interpretations are determined by their experiences, values and personality (Hambrick & Mason, 1984). Therefore, in order to understand the strategic approach of firms, and thus their performance, it is important to take into account the biases and inclinations of their top managers. In this matter, the UET suggests that demographic characteristics can be used as proxies of top managers' cognitive frames.

Vast research has explored the link between manager education and fund performance. Several papers have attempted to answer the question whether fund management teams with Master of Business Administration (MBA) degrees outperform others. Nevertheless, there is no consensus yet in the financial economics literature regarding the value of a graduate business education as an enhancer of fund performance. While there is empirical evidence that fund managers from high-ranked MBA programs tend to outperform (Chevalier and Ellison, 1999; Gottesman and Morey, 2006), mixed evidence is found between the performance of managers who hold an MBA degree (regardless of their ranking) compared to those who do not (Chevalier and Ellison, 1999; Gottesman and Morey, 2006; Jelic, Zhou and Wright, 2019; Zarutskie, 2010).

In addition, other studies highlight the importance of academic variety in the management team: funds with a broader educational profile (e.g., different fields of study) tend to outperform (Degeorge et al., 2016; Fuchs et al., 2022). Moreover, previous studies reveal that expertise in an industry (i.e. strategy, management consulting or engineering) is

associated with persistent and significant higher performance (Acharya et al., 2013; Zarutskie, 2010).

To the best of this author's knowledge, to the date only one research analysed the relation between fund performance and whether the manager holds another master degree besides (or in addition to) an MBA; whether the manager holds a Ph.D.; and whether the manager holds a specialized certification (namely CFA). Gottesman and Morey (2006) have performed such investigation on mutual funds, and they conclude that managers with such additional education variables do not outperform others.

Although much research has been devoted to investigating the impact of manager education on performance, the majority has been conducted on mutual funds. Literature in this matter regarding PE funds is still scarce, given it is a domain where data is difficult to assess. Therefore, this study aims to shed further light on the role that the educational background of LPTs plays in predicting the performance of PE funds. In particular, four potential channels throughout which educational characteristics may impact buyout performance are explored: (i) levels of education, (ii) specialized certifications (e.g., CFA or CA), (iii) combination of levels of education and specialized certifications, and (iv) educational profile.

This study uses Ordinary Least Squares (OLS) models and a data set of 263 worldwide buyouts with full demographic information on 597 involved PE lead partners from 1997 to 2015. Additionally, a sample with the most suitable non-PE backed peer for each PE buyout is constructed. This allows to calculate the abnormal performance of the PE firms relative to their respective non-PE backed peers. The compound annual growth rate of enterprise value (EV CAGR) is used as the measure of performance.

This paper finds no significant impact of levels of education and/or specialized certifications on buyout performance. This applies to either individual variables or their combined effects. This suggests that other factors such as work experience, practical skills, cognitive intelligence and motivation may also influence performance, making it difficult to isolate the impact of education alone.

Furthermore, this study reveals that compared to LPTs with a non-business background, the teams with a broader educational profile (defined as a background in business combined with a non-business background) tend to outperform. However, the question whether a broader educational profile among LPTs can positively affect buyout

performance still remains open. In case more empirical evidence is found in this direction, PE firms could use this knowledge to guarantee that at least one PE partner in the LPT has a business background and one has a non-business background (this can be the same person) in order to enhance buyout performance. This would be of great relevance in a performance-driven industry such as PE.

This paper's contributions to the academic literature are threefold. First, I contribute to the existing literature on investment performance predictability. Second, by focusing my investigation on PE funds, a field where research is rather limited as data is notoriously difficult to assess, I add novel statistics on the educational background history of LPTs. Third, I present an empirical analysis of the impact of the educational background of LPTs on buyout performance and analyse the channels driving these results.

Besides the added value to the existing literature, this research is also relevant for society. First, understanding the link between education and performance of LPTs is relevant for the PE firms, as they can use this knowledge in composing LPTs with potential optimal educational characteristics. Second, stakeholders could also benefit from this knowledge to make more well-informed decisions regarding the allocation of their funds. Third, this study provides valuable insights into the discussion on what may be a stronger predictor of buyout performance: education or experience. Fourth, this paper also offers insights into the potential benefits on performance of having LPTs with broader educational profile.

The remainder of this study is structured as follows. Chapter 2 presents the theoretical framework, empirical findings and hypotheses development. Chapter 3 explains the research method; it provides an overview of the variables and data used in this research, along with an in-depth exploration of the methodology employed. Chapter 4 includes the results. Chapter 5 provides the discussion and conclusions, as well as the managerial implications and the limitations of this study and avenues for future research. Chapters 6 and 7 present the references and appendices, respectively.

# 2. Literature and Hypotheses Development

## 2.1 Theoretical Framework

As this study aims to analysing the role that the educational background of LPTs plays in predicting PE fund performance, it is important to base such analysis on the upper echelons theory (UET) of Hambrick & Mason (1984). The core of the UET consists of two parts that cannot be seen independently from each other: (1) managers' actions are influenced by their personalized interpretations of strategic circumstances they encounter, and (2) these interpretations are determined by their experiences, values and personality. Thereby, the UET is built on the premise of bounded rationality (Cyert & March, 1963), which implies that circumstances that are informationally complex and uncertain are merely interpreted, instead of being objectively known (Mischel, 1977).

The UET establishes the groundwork to understanding why the demographics of top managers needs to be taken into consideration (Hammer et al., 2022). In order to understand the strategic approach of firms and therefore their performance, it is important to take into account the biases and inclinations of their top managers. The UET suggests that demographic characteristics (e.g., age, education, work experience, industry) can be used as proxies of top managers' cognitive frames.

The characteristics of the top management team provide better explanations to firms' outcomes than those related to one top manager alone (Hambrick & Mason, 1984). This is because in complex firms, the entire top management team is involved in the process of strategic decision-making, and therefore their cognitive bases and value-sets also matters. With regards to this subject, there is empirical evidence that the demographics of top managers (both individual managers and top management teams) are significantly related to strategy and performance (Boeker, 1997; D'Aveni, 1990; Eisenhardt and Schoonhoven, 1990).

Furthermore, the UET may not only be applied to top management teams, but also to other key decision-making units, such as supervisory boards (Nielsen, 2010). Due to the intrinsic nature of the PE industry, LPTs integrate both governance boards and supervisory boards, since as majority owners, they are engaged with both strategic decision-making and monitoring (Hammer et al., 2022).

## 2.2 Empirical Findings and Hypotheses Development

There is an ongoing debate in the literature concerning the effects of the educational background of top managers on predicting fund performance. While many studies investigate the value of a graduate business education in the management team as an enhancer of fund performance, others focus on exploring the relevance of different aspects, such as educational ties, quality of education, academic variety, specialized certifications, specialization in an industry, work experience and diversity in the team.

Regarding the role of educational ties, evidence suggests that educational networks between PE lead partners and CEOs of target companies exert a beneficial impact on both identifying and winning deals (Fuchs et al., 2017). Moreover, the exclusivity of educational networks matters: the more exclusive the tie is, the higher its value. However, while the existence of educational ties plays an important role in consummating a deal, such ties do not lead to a superior investment performance. This highlights that the value creation process only starts after the deal is made, independent of the access to a particular deal (Fuchs et al., 2017).

Further empirical evidence reveals the importance of MBA degrees in expanding educational networks, due to their popularity in the business world and to their traditional alumni network (Fuchs et al., 2022). Additionally, previous studies suggest that there is a positive correlation between the size of the CEO network and the level of CEO compensation (Brown et al., 2012; Engelberg et al., 2013).

According to Fuchs et al. (2022), a combination of high-quality education and high-profile work experience identifies individual performance among PE lead partners. Furthermore, academic variety in the management team matters: funds with more access to different undergraduate institutions and a broader educational profile perform better. The authors find that the addition of another university, that is not yet represented, to the educational background of the LPT increases a fund's performance by 2.5%.

Similarly, previous research highlights the benefits of complementary skill sets between the buyer and the seller in secondary buyouts. Higher performance and value creation for investors arise when the deal is made between a PE firm focusing on margin growth and a PE firm focusing on sales growth, or between PE firms in which the managers have broader educational profile or different career paths (Degeorge et al., 2016).

Moreover, evidence shows that work history characteristics are stronger predictors of venture capital fund performance than educational characteristics (Zarutskie, 2007). Nevertheless, the latter are not irrelevant. The author finds that venture capitalist teams with science and engineering degrees tend to outperform. In addition, having a member who attended an ivy league university in the team can also positively affect performance in later stage funds.

Complementary, empirical evidence highlights the benefits of expertise in operational engineering employed by large, mature PE firms in post-hiring value creation (Acharya et al., 2013). Such expertise is associated with persistent and significant higher performance. Overall, the aforementioned research demonstrates that active ownership and governance are important sources of value creation in these PE firms.

From a different perspective, Hammer et al. (2022) analyse the role that diversity among LPTs of PE funds plays in buyout performance. The authors distinguish between the "bright side" of diversity (i.e. improved decision-making due to diverse perspectives) and the "dark side" (i.e. deteriorated decision-making due to potential clashes and lack of cooperation). Overall, they find that diversity in sociodemographic characteristics (gender, age, nationality) is positively associated with higher buyout performance, while diversity in occupational characteristics (professional experience, educational background, university affiliation) has a negative association. In addition, the authors reveal that the "bright" side of diversity gains relatively more relevance in case of complex deals and uncertain deal environments.

Further evidence suggests that management style is significantly associated with performance, and that managers who outperform receive higher compensation and tend to work in better governed firms (Bertrand and Schoar, 2003). Moreover, the same study indicates that managers from earlier birth cohorts tend to be more conservative, while managers who hold an MBA degree tend to undertake more risky strategies.

Complementary, Gottesman and Morey (2006) extend their analysis by investigating whether the quality of the MBA program, measured by the GMAT score and *Business Week* ranking, impacts performance. The authors demonstrate that managers from high-ranked MBA programs tend to outperform both managers without MBA degrees and managers holding MBAs from unranked programs. Interestingly, they also reveal that other managers' education characteristics, such as achieving a CFA designation or

holding either a non-MBA masters-level graduate degree or Ph.D., do not significantly impact mutual fund performance.

Similarly, Chevalier and Ellison (1999) show that SAT scores are predictors of performance: managers holding degrees from higher-SAT undergraduate institutions systematically outperform others. Additionally, their results indicate that there is no significative difference between the performance of mutual fund managers who hold an MBA degree compared to those who do not. The authors also find that older managers tend to underperform younger managers. This result might be at least partially explained by Bertrand and Schoar's (2003) finding that older managers are usually more conservative.

From a different perspective, Jelic, Zhou and Wright (2019) show that LPTs' financial experience in acquiring PE firms drives buyout profitability, while high level business education affects growth performance enhancement. LPTs' operational experience does not affect performance. Intriguingly, their study reveals that PE firms focused on growth tend to prioritizing directors with an MBA degree, whereas directors with an MBA have a significant role in the performance of poorly performing portfolio companies.

Previous research provides insights into educational backgrounds of venture capital fund management teams, and indicates that the human capital in top management teams can predict fund performance (Zarutskie, 2010). In particular, specialization in a task (i.e. work experience) or in an industry (i.e. strategy, management consulting or engineering) are stronger indicators of fund performance than diversification (i.e. general human capital acquired through education). Zarutskie (2010) finds that top management teams with more general human capital in business administration (i.e. with more MBAs) perform worse than others. While this result might be counter-intuitive, it is consistent with the findings from Jelic, Zhou and Wright (2019).

Thus, although the impact of levels of education among top management teams on fund performance has been studied extensively, no consensus has yet been reached in the academic literature (Chevalier and Ellison, 1999; Gottesman and Morey, 2006; Jelic, Zhou and Wright, 2019; Zarutskie, 2010). However, it is intuitive to assume that managers who have attained higher levels of education have a better-equipped skill set and greater expertise in their field, which may translate to superior performance (Harris, 2014). This brings us to the first hypothesis:

> **H1:** *Higher levels of education among LPTs are positively associated with LBO (leveraged buyout) performance.*

Literature regarding the impact of specialized certifications among top management teams on fund performance is scarce. To the best of this author's knowledge, to date only one research has conducted such an investigation, finding that managers holding a CFA designation perform no differently than other fund managers (Gottesman and Morey, 2006). Nevertheless, since this seems to be the only research on this subject to date, more empirical evidence is needed. Similarly to obtaining higher levels of education, attaining specialized certifications may also entail achieving a better-equipped skill set and greater expertise, which may result in superior performance (Harris, 2014). As such, the second hypothesis is formulated:

> **H2:** *Specialized certifications (e.g., CFA or CA) among LPTs are positively associated with LBO performance.*

As a positive impact of either levels of education or specialized certifications among LPTs is expected on LBO performance, it is also relevant to investigate the interaction between both variables. To the best of this author's knowledge, this study is the first to undertake such an investigation. This brings us to the third hypothesis:

> **H3:** *The combination of both higher levels of education and specialized certifications among LPTs is positively associated with LBO performance.*

Another important dimension of education is the educational profile of the top management team. In this context, it is not only relevant knowing the levels of education and/or the specialized certifications among the leadership roles, but also in which fields their expertise are focused. As previously mentioned, empirical evidence has found that LPTs with a broader educational profile tend to outperform (Fuchs et al., 2022; Degeorge et al., 2016). As such, the fourth and final hypothesis is formulated:

> **H4:** *Broader educational profile among LPTs is positively associated with LBO performance.*

In this study, a broader educational profile among LPTs is defined as a background in business combined with a non-business background. This is valid when at least one of the involved PE lead partners in the respective buyout has a background in business and one has a non-business background (this could be the same PE lead partner).

Despite the fact that, as previously mentioned, quality of education is also a relevant educational characteristic that may influence buyout performance, this paper chooses not to examine this dimension of education. The reason behind this is that many studies have already conducted such an investigation, finding that high-quality education among top management teams is positively associated with fund performance (Chevalier and Ellison, 1999; Fuchs et al., 2022; Gottesman and Morey, 2006; Zarutskie, 2007). Thereby, empirical literature seems to have already reached a consensus regarding this matter.

Figure 1 illustrates the research framework of this study, which focuses on PE lead partner teams as decision-making units. This research investigates four potential channels throughout which educational characteristics may affect PE fund performance.
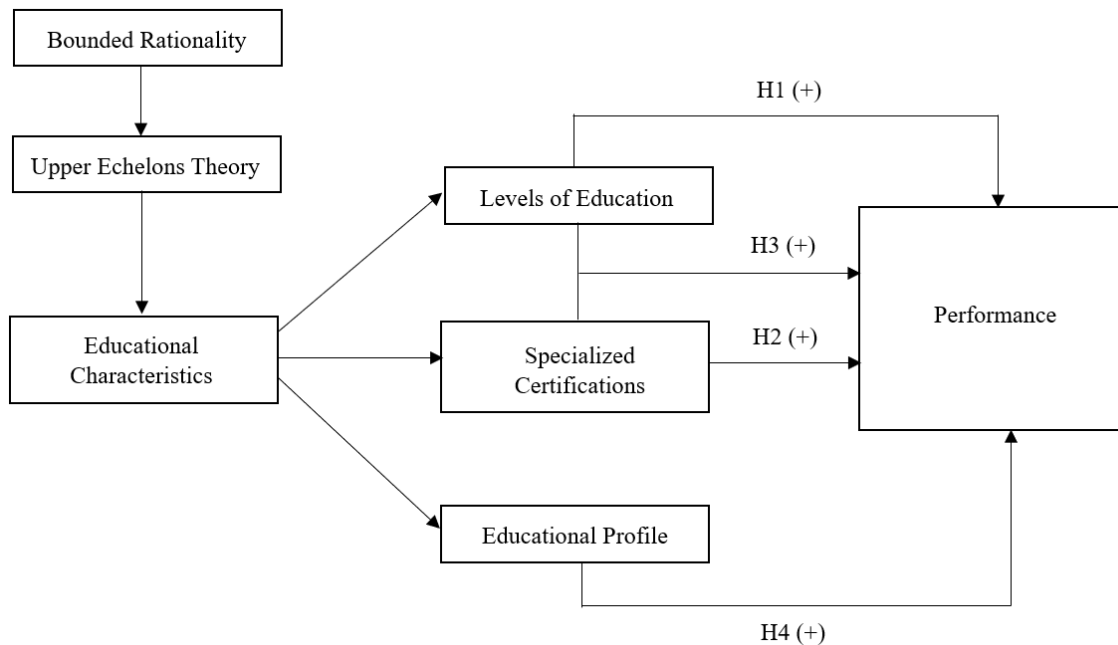


*Figure 1: Research framework – education and performance in private equity*

# 3. Research Method

This paper aims to examine the impact of the educational background of PE lead partners on buyout performance. To analyse this research question, the four hypotheses introduced above are tested. The same dataset as in Hammer et al. (2022)[2] is used. Additionally, a sample with the most suitable non-PE backed peer for each PE buyout is constructed. This allows to calculate the abnormal performance of the PE firms relative to their respective non-PE backed peers. The compound annual growth rate of enterprise value (EV CAGR) is used as the measure of performance.

## 3.1 Data Collection and Sample Distribution

The sample from Hammer et al. (2022) includes 263 LBOs from 26 countries with demographic information about the involved 597 PE partners, from 1997 to 2015.

Table 1 presents a detailed overview of the sample distribution. It displays buyouts and their involved lead partners by entry period (panel A), geographical region of target headquarters (panel B), academic degree (panel C), specialized certifications (panel D), educational background (panel E), work experience (panel F), PE experience (G) and university ranking (Panel H).

Panel A shows that more than half of the buyouts (54.0%) are from the buyout boom period. Panel B reports that 95.1% of the deals come from Europe (84.8%) and North America (10.3%), while other regions of the world account for only 4.9% of the buyouts in the sample. Despite the share of deals from Europe and North America combined may seem disproportionately high, Hammer et al. (2022) highlights the fact that they are consistent with the whole Zephyr sample (92.9%) and to Strömberg (2008) (94.1%). Panel C shows that only 6.5% of the LPTs in the sample possess a JD/MD/PhD, while 70.7% possess a master's degree and 21.3% a bachelor's degree as the highest degree.

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[2] The sample construction is derived from three main sources. The authors retrieve the LBO deal information from BvD's Zephyr database and the performance variables from BvD's Orbis database, composing a global LBO performance sample from 1997 to 2015. Next, they match this sample with the Preqin database, which encompasses information on involved PE partners. Ultimately, they hand collect demographic information from each partner from LinkedIn, Bloomberg Executive Information Systems and company websites.

Panel D reports that only 36.5% of the LPTs have at least one involved PE partner who attained a specialized certification. Moreover, among the lead partners who have specialized certifications, the vast majority (126) attained a CA designation, while only 4 have a CFA designation and 20 possess other specialized certifications. Panel E shows that the majority (51.3%) of the LPTs have a broader educational profile, while only 16.0% have a non-business background. Panel F reports that for more than half of the LPTs (58.6%) the average work experience in the team is between 10 and 20 years. Panel G shows that for most of the LPTs (61.6%), the average PE experience in the team is over 10 years. Panel H reports that most of the LPTs (60.5%) have an average normalized university ranking in the team above 0.90, meaning they have attended very prestigious universities in their respective countries[3].

*Table 1: Sample Distribution*

| | Deal observations | | Partner observations | |
|---|---|---|---|---|
| | n | Share | n | Share |
| **Panel A: Distribution of LBOs and their involved PE partners by entry period [4]** | | | | |
| New economy: 1997-2000 | 16 | 6.1% | 23 | 3.9% |
| Post-new economy: 2001-2003 | 44 | 16.7% | 81 | 13.6% |
| Buyout boom: 2004-2007 | 142 | 54.0% | 333 | 55.8% |
| Financial crisis: 2008-2010 | 34 | 12.9% | 91 | 15.2% |
| Post-financial crisis: 2011-2015 | 27 | 10.3% | 69 | 11.6% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |
| | | | | |
| **Panel B: Distribution of target headquarters and their involved PE partners by region** | | | | |
| Europe | 223 | 84.8% | 488 | 81.7% |
| North America (USA & Canada) | 27 | 10.3% | 84 | 14.1% |
| Rest of the World | 13 | 4.9% | 25 | 4.2% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |
| | | | | |
| **Panel C: Academic degree distribution** | | | | |
| JD/MD/PhD | 17 | 6.5% | 18 | 3.0% |
| Master (including MBA) | 186 | 70.7% | 385 | 64.5% |
| Higher academic degree | 203 | 77.2% | 403 | 67.5% |
| Bachelor | 56 | 21.3% | 165 | 27.6% |
| No degree | 3 | 1.1% | 4 | 0.7% |
| Missing | 1 | 0.4% | 25 | 4.2% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |

[3] For a detailed description of how the normalized university ranking is computed, see variable definitions in Table A1, in the appendix.
[4] As defined in Hammer (2022).

| | Deal observations | | Partner observations | |
|---|---|---|---|---|
| | n | Share | n | Share |
| ***Panel D: Specialized certifications*** | | | | |
| CA | n.a. | n.a. | 126 | 21.1% |
| CFA | n.a. | n.a. | 4 | 0.7% |
| Other | n.a. | n.a. | 20 | 3.4% |
| Specialized Certifications | 96 | 36.5% | 150 | 25.1% |
| No specialized certifications | 167 | 63.5% | 447 | 74.9% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |
| | | | | |
| ***Panel E: Educational background distribution*** | | | | |
| Business only background | 80 | 30.4% | 298 | 49.9% |
| Other + business | 135 | 51.3% | 134 | 22.4% |
| Business background | 215 | 81.7% | 432 | 72.4% |
| Non-business background | 42 | 16.0% | 132 | 22.1% |
| No background/n.a. | 6 | 2.3% | 33 | 5.5% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |
| | | | | |
| ***Panel F: Work experience distribution*** | | | | |
| Work experience ≤ 10 years | 39 | 14.8% | 165 | 27.6% |
| 10 years < work experience ≤ 20 years | 154 | 58.6% | 246 | 41.2% |
| Work experience > 20 years | 70 | 26.6% | 168 | 28.1% |
| Ø work experience (years) | 0 | 0.0% | 18 | 3.0% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |
| | | | | |
| ***Panel G: PE Experience distribution*** | | | | |
| PE experience ≤ 5 years | 20 | 7.6% | 99 | 16.6% |
| 5 < PE experience ≤ 10 years | 79 | 30.0% | 136 | 22.8% |
| PE experience > 10 years | 162 | 61.6% | 326 | 54.6% |
| Ø PE experience (years) | 2 | 0.8% | 36 | 6.0% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |
| | | | | |
| ***Panel H: University ranking (normalized)*** | | | | |
| University Ranking ≤ 0.85 | 75 | 28.5% | 147 | 24.6% |
| 0.85 < university ranking ≤ 0.90 | 29 | 11.0% | 66 | 11.1% |
| 0.90 < university ranking ≤ 0.95 | 61 | 23.2% | 86 | 14.4% |
| 0.95 < University ranking ≤ 1 | 98 | 37.3% | 298 | 49.9% |
| **Total** | **263** | **100.0%** | **597** | **100.0%** |

This table presents the sample distribution of 263 worldwide buyouts and their involved 597 PE lead partners from 1997 to 2015. The panels display the distribution of buyouts and their partners by deal entry period (panel A), geographical region of target firm's headquarters (panel B), academic degree (panel C), specialized certifications (panel D), educational background (panel E), work experience (panel F), PE experience (G) and university ranking (Panel H).

## 3.2 Sample Construction of the non-PE Backed Peers

To obtain the most suitable non-PE backed peer (for the rest of this study, the non-PE backed peers will be referred to as *comparable firms* or *twin firms*) for each of the 263 target firms in the sample, I use *Factset* database and conduct the following procedure. First, I identify the target firm's industry, according to the Fama-French 12-industry classification[5] from the Kenneth French's data library, and refine it further using *Factset's* industry classification.

Next, I select comparable public firms within the same industry classification and that are based in the same country of the target firm. In case no relevant comparable firm is found within the same country, I expand the search for neighbouring countries and in a next step to countries within the same continent. On the other hand, in case multiple comparable firms are found in the same country or continent, I select the one that has the closest core business to the target firm. In case multiple relevant comparable firms are still found within the same industry, region and core business, then I choose the one with the closest enterprise value (EV) to the target firm.

It is important to note that the Fama-French 12-industry classification and the *Factset's* industry classification cover a wide range of different activities within the same industry. For example, the "Health" category in the Fama-French 12-industry system (see Table A2, in the appendix) entails not only healthcare activities (e.g., hospitals, nursing homes, health insurances), but also companies that engage in the development and production of drugs, as well as companies that manufacture medical equipment. Thus, when selecting the most suitable twin firms, I prioritize those that share the same core business as their respective target firm, even if their EV may noticeably differ from the target firm. This is a more suitable approach than selecting twin firms within the same industry solely based on the similarity of their EVs relative to their respective target firm, even when their core business may significantly differ.

Ultimately, I retrieve the EVs of each selected twin firm on the respective deal entry and deal exit dates, and calculate their EV CAGRs during the holding period. For that, I compute the following formula:

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[5] See Table A2, in the appendix, for a detailed overview of the Fama-French 12-industry classification.

$$EV\ CAGR = \left(\frac{EV_{exit}}{EV_{entry}}\right)^{\frac{1}{holding\ period}} - 1 \qquad (1)$$

where $EV_{entry}$ is the twin firm's EV on the reference buyout entry date; $EV_{exit}$ is the twin firm's EV on the reference buyout exit date; and holding period is the time in years from entry to exit of the reference buyout. In case information about the EV is missing for a particular twin firm, I disregard that firm and apply the same procedure once again to find the next most suitable twin.

Table 2 reports comparative metrics between the samples of target firms and twin firms. Although the mean EV is considerably higher in the sample of twin firms, the median EV is very similar in both samples (panel A). The mean EV CAGR in the sample of target firms is almost double in comparison with the sample of twin firms (panel B). A factor that may also contribute for that is that the target firms have, on average, a smaller size (lower mean EV), which implies a higher growth potential. The mean *abnormal EV CAGR* is 16% (panel C).

*Table 2: Comparative Metrics Between the Samples of Target Firms and Twin Firms*

|  | n | Mean | Median | SD | Min. | Max. |
|---|---|---|---|---|---|---|
| *Panel A: Enterprise Value* | | | | | | |
| $EV_{target\ firms}$ | 263 | 760 | 187 | 2,521 | 7 | 27,500 |
| $EV_{twin\ firms}$ | 263 | 3,394 | 186 | 20,808 | -515 | 300,299 |
| | | | | | | |
| *Panel B: Compound Annual Growth Rate of Enterprise Value* | | | | | | |
| $EV\ CAGR_{target\ firms}$ | 263 | 33% | 22% | 48% | -100% | 465% |
| $EV\ CAGR_{twin\ firms}$ | 263 | 17% | 10% | 39% | -85% | 234% |
| | | | | | | |
| *Panel C: Abnormal Compound Annual Growth Rate of Enterprise Value* | | | | | | |
| *Abnormal EV CAGR* | 263 | 16% | 11% | 60% | -278% | 550% |

This table reports comparative metrics between the samples of target firms and twin firms. Panel A shows the *enterprise value (EV)* in millions of U.S. dollars, panel B presents the *compound annual growth rate of enterprise value (EV CAGR)* and panel C reports the *abnormal compound annual growth rate of enterprise value (abnormal EV CAGR)* from deal entry to deal exit. The *abnormal EV CAGR* is computed as the difference between the *EV CAGR* of the target firm and the *EV CAGR* of the respective twin firm. See variable definitions in Table A1, in the appendix.

Although it may seem counterintuitive that a firm can present a negative EV (as stated in the minimum value of the $EV_{twin\ firms}$; see Table 2), this happens when the total value of its cash and cash equivalents exceeds the sum of its market capitalization and debts.

This indicates that a company is not using its assets effectively - it has an excessive amount of idle cash that is not being utilized.

The relatively high maximum value of the $EV_{twin\ firms}$ (approximately \$300 billions; see Table 2) is explained by the fact that the corresponding twin firm is *AT&T Inc*, which is a large multinational telecommunications conglomerate. This twin firm was chosen for having the closest core-business relative to the respective target firm (*ALLTEL Corporation*) and for having its headquarters in the same country as the target firm.

## 3.3 Variable Measurement

Following Hammer et al. (2022) and Nikoskelainen and Wright (2007), I use the compound annual growth rate of the target's enterprise value (EV CAGR) from entry to exit to analyse the deal performance. The EV CAGR of the target firm can be easily compared to the EV CAGR of the respective twin firm and is not affected by leverage levels[6]. Comparing both EV CAGRs allows for evaluation of abnormal performance, and provides valuable insights regardless of their financial structures or leverage levels.

I obtain the *abnormal EV CAGR* by means of a three-step procedure. First, I retrieve the EV CAGRs of the target firms provided in the dataset from Hammer et al. (2022). Second, I compute the EV CAGRs of the respective twin firms within the same holding period from the largest available stock index of each country. Third, for each buyout I subtract the EV CAGR of the twin firm from the EV CAGR of the respective target firm.

## 3.4 Model Specification

This study uses cross-sectional data on 263 worldwide LBOs with demographic information about 597 PE partners, from 1997 to 2015.

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[6] Leverage can impact a company's financial performance and growth. However, when comparing CAGRs, the focus is on the growth rate itself, rather than the specific financial structure of the companies being compared.

The main explanatory variables for levels of education are *JD/MD/PhD*, *master, higher academic degree* and *bachelor*; for specialized certifications is *specialized certifications*; and for *educational profile* are *business plus*, *business only and non-business*. See variable definitions in Table A1, in the appendix.

To control for deal-, firm- and PE sponsor-specific characteristics, the following variables are included in the regression models: *inorganic deal* designates the post-buyout value creation strategy (Acharya et al. 2013; Hammer et al., 2022); *holding period* reflects the time in years between entry and exit of the respective LBO (Acharya et al. 2013; Hammer et al., 2022); *(ln) deal value* represents the natural logarithm of the target firm's enterprise value (Acharya et al. 2013; Hammer et al., 2022); *PEI 100* indicates whether the PE sponsor is among the 100 largest global PE firms (Arcot et al., 2015; Hammer et al., 2022); and *(ln) sponsor experience* represents the natural logarithm of the PE sponsor's prior experience (Hammer et al., 2017; Hammer et al., 2022).

To control for PE partner characteristics, the following variables are included: *average work experience* (Bottazzi, Rin and Hellmann, 2008; Hammer et al., 2022), *average PE Experience* (Clare, et al., 2022; Gottesman and Morey, 2006); *average university ranking* (Fuchs et al. 2017; Hammer et al., 2022), *share specialized certifications*[7] (Clare, et al., 2022; Hammer et al., 2022; Zarutskie, 2010)*; share higher academic degree*[8] (Hammer et al., 2022; Zarutskie, 2010).

To account for potential confounding factors that may affect the relationship between variables (Wooldridge, 2015), a set of fixed effects is included: entry channel FE[9] (Hammer et al., 2022); entry period FE[10] (Hammer et al., 2022); and team size FE[11] (Hammer et al., 2022).

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[7] This control variable is only included in the regression models used to test the first and the fourth hypotheses, as it is already a main explanatory variable in the other models.

[8] This control variable is only included in the regression models used to test the second and the fourth hypotheses, as it is already a main explanatory variable in the other models.

[9] Following Hammer et al. (2022), six entry channel dummy variables are used based on seven entry channel labels: public-to-private, private-to-private, divisional, financial, privatization, receivership and other.

[10] Following Hammer et al. (2022), four entry period dummy variables are used based on five periods: new economy (1997-2000), post-new economy (2001-2003), buyout boom (2004-2007), financial crisis (2008-2010) and post-financial crisis (2011-2015).

[11] Following Hammer et al. (2022), three team size dummy variables are used based on four PE lead partner groups: single, dual, medium-sized (three lead partners) and large (four or above).

## 3.5 Methodology

Four cross-sectional regression models are performed on the sample of 263 LBOs, inspired by the same methodology from Hammer et al. (2022).

To test H1 the following regression is conducted four times, one for each different level of education:

$$\text{EV CAGR}_i = \alpha_0 + \beta_1.Educ_i + \nu_q Q_{q,i} + \eta_n R_{r,i} + \sum_k \varphi_{k,i} + \varepsilon_i \qquad (2)$$

where $\text{EV CAGR}_i$ represents *abnormal EV CAGR*; $Educ$ represents *levels of education* (*JD/MD/PhD*, *master, higher academic degree* or *bachelor*, as defined in Table A1*)*; $Q_q$ is an LBO control vector of deal-, firm- and PE sponsor-specific characteristics (*inorganic deal, holding period, (ln) deal value, PEI 100, (ln) sponsor experience*); $R_r$ is the control vector of the PE partner characteristics (*average work experience, average PE experience, average university ranking, specialized certifications*); and $\varphi_k$ is a set of fixed effects (entry channel FE, entry period FE and team size FE). Table A1 provides the variable definitions of all the dependent and independent variables, as well as the fixed effects used in this study. If *levels of education* is positively associated with abnormal EV CAGR, a positive coefficient on $Educ_i$ ($\beta_1$) is expected.

To test H2, the following regression is performed:

$$\text{EV CAGR}_i = \alpha_0 + \beta_1.Cert_i + \nu_q Q_{q,i} + \eta_n R_{r,i} + \sum_k \varphi_{k,i} + \varepsilon_i \qquad (3)$$

where $Cert$ represents *specialized certifications*; $R_r$ is the control vector of the PE partner characteristics (*average work experience, average PE experience, average university ranking, share higher academic degree*) and all other variables are as defined in Eq. (2). If *specialized certifications* is positively associated with abnormal EV CAGR, a positive coefficient on $Cert_i$ ($\beta_1$) is expected.

To test H3, the following regression is conducted four times, one for each different level of education:

$$\text{EV CAGR}_i = \alpha_0 + \beta_1.Educ_i + \beta_2.Cert_i + \beta_3 Educ_i.Cert_i + \nu_q Q_{q,i} +$$
$$\eta_n R_{r,i} + \sum_k \varphi_{k,i} + \varepsilon_i \qquad (4)$$

where $Educ_i.Cert_i$ is an interaction term between *levels of education* and *specialized certifications;* $R_r$ is the control vector of the PE partner characteristics (*average work experience, average PE experience, average university ranking*) and all other variables are as defined in Eq. (2).

To avoid the increased complexity that would be caused by the inclusion of a large number of interaction terms in the same regression model, I choose to perform four regressions, one for each different level of education. This makes the model easier to interpret and understand, especially when analyzing the individual effects of variables and interaction terms. By applying this approach, I also prevent the problem of overfitting[12].

An interaction term between *levels of education* and *specialized certifications* ($Educ_i.Cert_i$) is added to provide a deeper understanding of the relationship among the variables in the model. By adding such interaction term, I aim to analyse whether LPTs that hold higher educational degrees and that attained specialized certifications (e.g., LPTs that hold an PhD degree and an CA certification) tend to outperform. If the interaction between *levels of education* and *specialized certifications* is positively associated with abnormal EV CAGR, a positive coefficient on $Educ_i.Cert_i$ ($\beta_3$) is expected.

To test H4, the following regression is conducted:

$$EV\ CAGR_i = \alpha_0 + \beta_1.business\ plus_i + \beta_2.business\ only_i + v_q Q_{q,i} +$$
$$\eta_n R_{r,i} + \sum_k \varphi_{k,i} + \varepsilon_i \tag{5}$$

where *business plus* and *business only* represent the explanatory variables for educational profile (as defined in Table A1; *non-business* is excluded from the regression to avoid multicollinearity, thereby being designated as the reference category); $R_r$ is the control vector of the PE partner characteristics (*average work experience, average PE experience, average university ranking, share specialized certifications; share higher academic degree*) and all other variables are as defined in Eq. (2). If a broader educational

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[12] Overfitting is the use of models that include more terms than are necessary or use more complex approaches than are necessary. Overfitting occurs when the model fits the noise or random variations in the data rather than the true underlying relationships, and it may lead to a decrease in the model's predictive performance when applied to new, unseen data. Justifying a more complex modeling approach requires demonstrating that the additional complexity is necessary and that simpler models cannot achieve an equivalent quality of fit (Hawkins, 2004).

profile is positively associated with abnormal EV CAGR, a positive coefficient on $business\ plus_i(\beta_1)$ is expected.

## 3.6 Descriptive Statistics

Table 3 presents descriptive statistics for all the dependent and independent variables. It reports that only 6.5% of the LPTs in the sample possess a JD/MD/PhD, while 70.7% possess a master's degree and 21.3% a bachelor's degree as their highest degree. Approximately three-quarters (77.2%) of the LPTs in the sample obtained a higher academic degree, and only 36.5% attained a specialized certification. Furthermore, the majority (51.3%) of the LPTs have a broader educational profile[13], while only 16.0% have a non-business background.

*Table 3: Descriptive Statistics*

|  | n | Mean | Median | SD | Min. | Max. |
|---|---|---|---|---|---|---|
| *Panel A: Dependent Variables* | | | | | | |
| Abnormal EV CAGR | 263 | 15.7% | 11.1% | 60.4% | 278.3% | 549.9% |
| Non-peer-adjusted EV CAGR | 263 | 32.8% | 21.7% | 47.5% | 100.0% | 464.8% |
| | | | | | | |
| *Panel B: Explanatory Variables* | | | | | | |
| JD/MD/PhD | 263 | 6.5% | 0.0% | 24.6% | 0.0% | 100.0% |
| Master | 263 | 70.7% | 100.0% | 45.6% | 0.0% | 100.0% |
| Higher academic degree | 263 | 77.2% | 100.0% | 42.5% | 0.0% | 100.0% |
| Bachelor | 263 | 21.3% | 0.0% | 41.0% | 0.0% | 100.0% |
| Specialized certifications | 263 | 36.5% | 0.0% | 48.2% | 0.0% | 100.0% |
| Business only | 263 | 30.4% | 0.0% | 46.4% | 0.0% | 100.0% |
| Business plus | 263 | 51.3% | 100.0% | 50.0% | 0.0% | 100.0% |
| Non-business | 263 | 16.0% | 0.0% | 37.0% | 0.0% | 100.0% |
| | | | | | | |
| *Panel C: Control Variables* | | | | | | |
| Average experience PE (years) | 263 | 12.5 | 12.0 | 5.8 | 0.0 | 38.0 |
| Average university ranking | 263 | 85.8% | 92.6% | 19.0% | 0.0% | 100.0% |
| Average work experience (years) | 263 | 16.5 | 16.2 | 6.1 | 1.0 | 37.0 |
| Holding period (years) | 263 | 4.0 | 3.6 | 2.2 | 0.0 | 14.2 |
| Inorganic deal | 263 | 59.7% | 100.0% | 49.1% | 0.0% | 100.0% |
| Deal entry value (mUSD) | 263 | 759.8 | 186.8 | 2,520.8 | 6.7 | 27,500.0 |
| PEI 100 | 263 | 38.4% | 0.0% | 48.7% | 0.0% | 100.0% |
| Sponsor experience | 263 | 71.8 | 45.0 | 70.0 | 0.0 | 280.0 |

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[13] A broader educational profile is represented in this study by the independent variable *business plus*. See variable definitions in Table A1.

This table reports the descriptive statistics. Panel A displays the values of all dependent variables used in the regression analyses. Panels B and C show the values of all explanatory and all control variables, respectively. To facilitate comparison, absolute values of natural logarithmic variables (deal value and sponsor experience) are displayed. See variable definitions in Table A1.

Table 4 presents the correlation matrix of all explanatory and control variables used in the regression models. Pairwise correlation among all control variables is lower than 0.7 [14]. The relatively low degree of correlation indicates less potential for multicollinearity.

Table 4 also displays interesting results regarding *specialized certifications*. First, the results show that specialized certifications are a supplement for a bachelor's degree as the correlation between *specialized certifications* and *bachelor* is 0.20. Second, the results show that there is a weak inverse relationship between higher *levels of education* (*JD/MD/PhD*, *master*, *higher academic degree*) and *specialized certifications*, as the correlations between *specialized certifications* and *JD/MD/PhD*, *master* and *higher academic degree* are -0.10, -0.14, -0,19, respectively. This means that as the level of education increases, the attainment of specialized certifications tends to decrease, suggesting that LPTs with higher levels of education are less likely to have specialized certifications.

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[14] As expected, pairwise correlation between variables is only higher than 0.7 in magnitude between the following independent variables: higher academic degree and master; higher academic degree and bachelor; and master and bachelor. As mentioned before, these variables are not used together in the same regression, therefore multicollinearity does not appear to be a concern.

*Table 4: Correlation Matrix*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) JD/MD/PhD | 1.00 | | | | | | | | | | | | | | | |
| (2) Master | -0.41*** | 1.00 | | | | | | | | | | | | | | |
| (3) Higher academic degree | 0.15** | 0.82*** | 1.00 | | | | | | | | | | | | | |
| (4) Bachelor | -0.14** | -0.81*** | -0.94*** | 1.00 | | | | | | | | | | | | |
| (5) Specialized certifications | -0.10* | -0.14** | -0.19*** | 0.20*** | 1.00 | | | | | | | | | | | |
| (6) Business only | -0.18*** | 0.02 | -0.09 | 0.09 | -0.07 | 1.00 | | | | | | | | | | |
| (7) Business plus | 0.25*** | 0.20*** | 0.37*** | -0.37*** | 0.03 | -0.61*** | 1.00 | | | | | | | | | |
| (8) Non-business | -0.12* | -0.29*** | -0.38*** | 0.39*** | 0.06 | -0.30*** | -0.46*** | 1.00 | | | | | | | | |
| (9) Average university ranking | -0.06 | 0.12** | 0.08 | -0.10* | -0.06* | -0.08 | 0.10 | -0.04 | 1.00 | | | | | | | |
| (10) Average work experience | -0.03 | -0.04 | -0.07 | 0.07 | -0.07 | 0.03 | -0.04 | 0.02 | -0.10 | 1.00 | | | | | | |
| (11) Average experience PE | -0.01 | -0.05 | -0.06 | -0.02 | -0.11 | 0.11* | -0.11* | 0.02 | -0.06 | 0.39*** | 1.00 | | | | | |
| (12) Holding period | 0.03 | 0.02 | 0.03 | -0.02 | 0.04 | 0.01 | 0.01 | -0.02 | -0.07 | 0.19*** | -0.09 | 1.00 | | | | |
| (13) Inorganic deal | -0.04 | -0.12* | -0.15** | 0.12** | 0.12** | 0.14** | -0.23*** | 0.14** | -0.08 | 0.01 | 0.01 | -0.03 | 1.00 | | | |
| (14) (ln) Deal value | 0.09 | 0.26*** | 0.32*** | -0.33*** | -0.27*** | -0.10 | 0.26*** | -0.23*** | 0.11* | -0.03 | 0.12* | 0.00 | -0.33*** | 1.00 | | |
| (15) PEI 100 | 0.11* | 0.06 | 0.14** | -0.14** | -0.11* | -0.07 | 0.16*** | -0.13** | 0.18*** | -0.12* | -0.11* | -0.06 | -0.18*** | 0.42*** | 1.00 | |
| (16) (ln) Sponsor experience | 0.05 | -0.08 | -0.02 | 0.05 | 0.06 | -0.19*** | 0.19*** | -0.02 | 0.18*** | -0.12* | -0.23*** | -0.06 | -0.07 | 0.19*** | 0.53*** | 1.00 |

This table presents the correlation matrix of all explanatory and control variables used in the regression models. See variable definitions in Table A1. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

# 4. Results

This section provides a detailed analysis of the results obtained from the hypotheses tests. Subsequently, a robustness test is performed to verify the validity of the significant findings.

## 4.1 Levels of Education and Abnormal Performance

Table 5 reports the base results to test H1. The impact of *levels of education* on *abnormal EV CAGR* is analysed. *Bachelor, master, JD/MD/PhD and higher academic degree* are introduced as the main explanatory variables for levels of education, along with the relevant control variables and the set of fixed effects.

Rejecting H1, the results show that there is no significant relationship between the levels of education among LPTs and *abnormal EV CAGR*. This result is in line with the financial economics literature, which has not reached a consensus yet regarding the impact of higher levels of education among top management teams on performance (Chevalier and Ellison, 1999; Gottesman and Morey, 2006; Jelic, Zhou and Wright, 2019; Zarutskie, 2010).

Regarding the control variables, *holding period* and *(ln) deal value* have a negative significant relationship with *abnormal EV CAGR* ($\rho < 0.05$ and $\rho < 0.01$, respectively), which is consistent with the findings of Hammer et al. (2022) and Acharya et al. (2013). In addition, *average work experience* displays a positively significant correlation with *abnormal EV CAGR* ($\rho < 0.08$), which is in line with the results of Hammer et al. (2022). Surprisingly, the results also reveal that *average university ranking* exhibits a significantly negative correlation with *abnormal EV CAGR* ($\rho < 0.03$). Although this result may seem counterintuitive, a possible explanation for this is that lead partners who attended less prestigious universities may put in extra effort and go the extra mile in fulfilling their roles and responsibilities as a form of compensation. Furthermore, *(ln) sponsor experience* displays a significantly positive coefficient ($\rho < 0.10$) on *abnormal EV CAGR* only for the regression models in which the independent variables are

*JD/MD/PhD* and *higher academic degree*. All other control variables in the regression models exhibit a non-significant relationship with *abnormal EV CAGR*.

*Table 5: Abnormal Performance Relative to Levels of Education – Base Results*

| | Dependent variable = abnormal EV CAGR | | | |
|---|---|---|---|---|
| | Explanatory variable for levels of education | | | |
| | (1) Bachelor | (2) Master | (3) JD/MD/PhD | (4) Higher academic degree |
| Bachelor | 0.028 | | | |
| | (0.03) | | | |
| Master | | -0.009 | | |
| | | (0.04) | | |
| JD/MD/PhD | | | 0.012 | |
| | | | (0.10) | |
| Higher academic degree | | | | 0.005 |
| | | | | (0.02) |
| Specialized certifications | 0.017 | 0.020 | 0.022 | 0.022 |
| | (0.02) | (0.01) | (0.02) | (0.02) |
| Average experience PE (years) | 0.002 | 0.002 | 0.002 | 0.002 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Average university ranking | -0.180** | -0.181** | -0.181*** | -0.183** |
| | (0.03) | (0.02) | (0.01) | (0.02) |
| Average work experience (years) | 0.005* | 0.004* | 0.004* | 0.004* |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Holding period (years) | -0.048** | -0.047** | -0.047** | -0.047** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Inorganic deal | -0.036 | -0.037 | -0.037 | -0.037 |
| | (0.02) | (0.02) | (0.02) | (0.02) |
| (ln) Deal value | -0.107*** | -0.110*** | -0.111*** | -0.112*** |
| | (0.01) | (0.01) | (0.00) | (0.01) |
| PEI 100 | 0.047 | 0.045 | 0.045 | 0.045 |
| | (0.04) | (0.04) | (0.05) | (0.04) |
| (ln) Sponsor experience | 0.050 | 0.052 | 0.053* | 0.054* |
| | (0.02) | (0.02) | (0.01) | (0.02) |
| Entry channel FE | Yes | Yes | Yes | Yes |
| Entry period FE | Yes | Yes | Yes | Yes |
| Team size FE | Yes | Yes | Yes | Yes |
| Intercept | Yes | Yes | Yes | Yes |
| Obs | 262 | 262 | 262 | 262 |
| Adjusted $R^2$ | 0.17 | 0.17 | 0.17 | 0.17 |

This table provides the results of multiple regressions of abnormal deal performance on the different levels of education of PE lead partner teams (see Eq. (2)). Because information about the academic degree of one LPT was not available, the sample entails 262 buyouts - one less than in the original sample - from 1997 to 2015. The dependent variable is abnormal EV CAGR. Levels of education (*JD/MD/PhD, master, higher academic degree or bachelor*) are the main explanatory variables. I control for partner, deal and PE

characteristics, and a set of fixed effects is added as well (entry channel FE; entry period FE; and team size FE). See variable definitions in Table A1. Robust standard errors, clustered for region, are shown in parentheses. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

## 4.2 Specialized Certifications and Abnormal Performance

Table 6 displays the base results to test H2. The impact of *specialized certifications* on *abnormal EV CAGR* is examined. *Specialized certifications* is introduced as the main explanatory variable, along with the relevant control variables and the set of fixed effects.

Rejecting H2, the results show that there is no significant relationship between *specialized certifications* among LPTs and *abnormal EV CAGR*. This result is in line with the findings of Gottesman and Morey (2006) that show that managers holding a CFA designation perform no better than other fund managers.

In addition to the control variables from the previous model, a new variable is introduced to control for PE characteristics (*higher academic degree*). It is observed that *holding period*, *(ln) deal value*, *average work experience* and *average university ranking* display results that are qualitatively similar to the previous findings. Furthermore, *(ln) sponsor experience* exhibits a significantly positive correlation ($\rho < 0.10$) with *abnormal EV CAGR*, which is consistent with the findings of Hammer et al. (2017). All other control variables in the regression model present a non-significant relationship with *abnormal EV CAGR*.

*Table 6: Abnormal Performance Relative to Specialized Certifications – Base Results*

|  | Dependent variable = abnormal EV CAGR |
| --- | --- |
| Specialized certifications | 0.022 |
|  | (0.02) |
| Average experience PE (years) | 0.002 |
|  | (0.00) |
| Average university ranking | -0.183** |
|  | (0.02) |
| Average work experience (years) | 0.004* |
|  | (0.00) |
| Holding period (years) | -0.047** |
|  | (0.01) |
| Inorganic deal | -0.037 |
|  | (0.02) |
| (ln) Deal value | -0.112*** |
|  | (0.01) |
| PEI 100 | 0.045 |
|  | (0.04) |
| (ln) Sponsor experience | 0.054* |
|  | (0.02) |
| Higher academic degree | 0.005 |
|  | (0.02) |
| Entry channel FE | Yes |
| Entry period FE | Yes |
| Team size FE | Yes |
| Intercept | Yes |
| Obs | 262 |
| Adjusted $R^2$ | 0.17 |

This table provides the results of the regression of abnormal deal performance on specialized certifications of PE lead partner teams (see Eq. (3)). Because information about the academic degree of one LPT was not available, the sample entails 262 buyouts - one less than in the original sample - from 1997 to 2015. The dependent variable is abnormal EV CAGR. *Specialized certifications* is the main explanatory variable. I control for partner, deal and PE characteristics, and a set of fixed effects is added as well (entry channel FE; entry period FE; and team size FE). See variable definitions in Table A1. Robust standard errors, clustered for region, are shown in parentheses. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

## 4.3 Levels of Education & Specialized Certifications and Abnormal Performance

Table 7 reports the base results to test H3. The different *levels of education* (*JD/MD/PhD, master, higher academic degree* or *bachelor*) are interacted with *specialized certifications* and their influence on *abnormal EV CAGR* is analysed. The relevant control variables and the set of fixed effects is also introduced.

Rejecting H3, the results show that the interaction term between *levels of education* and *specialized certifications* is statistically unrelated to *abnormal EV CAGR*. Thus, the hypothesis that LPTs that obtained higher levels of education and attained specialized certifications tend to outperform is refuted. This means that LPTs that possess both a JD/MD/PhD degree and a specialized certification perform no differently than LPTs with only bachelor degrees and without specialized certifications.

Regarding the control variables, it is observed that *holding period*, *(ln) deal value*, *average work experience* and *average university ranking* present results that are qualitatively similar to the previous findings. All other control variables in the regression models display a non-significant relationship with *abnormal EV CAGR*.

*Table 7: Abnormal Performance Relative to Levels of Education and Specialized Certifications – Base Results*

| | Dependent variable = abnormal EV CAGR | | | |
|---|---|---|---|---|
| | Explanatory variable for levels of education | | | |
| | (1) Bachelor | (2) Master | (3) JD/MD/PhD | (4) Higher academic degree |
| Bachelor | -0.022 | | | |
| | (0.03) | | | |
| Bachelor x certification | 0.103** | | | |
| | (0.02) | | | |
| Master | | -0.016 | | |
| | | (0.05) | | |
| Master x certification | | 0.017 | | |
| | | (0.04) | | |
| JD/MD/PhD | | | 0.035 | |
| | | | (0.12) | |
| JD/MD/PhD x certification | | | -0.117 | |
| | | | (0.19) | |
| Higher academic degree | | | | 0.017 |
| | | | | (0.02) |
| Higher academic degree x certification | | | | -0.026 |
| | | | | (0.01) |
| Certification | -0.008 | 0.009 | 0.029 | 0.041* |
| | (0.02) | (0.03) | (0.02) | (0.01) |
| Average experience PE (years) | 0.001 | 0.002 | 0.002 | 0.002 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Average university ranking | -0.176** | -0.181** | -0.178*** | -0.182** |
| | (0.02) | (0.02) | (0.01) | (0.02) |
| Average work experience (years) | 0.005* | 0.004* | 0.004* | 0.004* |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Holding period (years) | -0.048** | -0.047** | -0.048** | -0.048** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Inorganic deal | -0.032 | -0.038 | -0.039 | -0.036 |
| | (0.02) | (0.02) | (0.02) | (0.02) |
| (ln) Deal value | -0.106*** | -0.110*** | -0.110*** | -0.111*** |
| | (0.01) | (0.01) | (0.00) | (0.01) |
| PEI 100 | 0.055 | 0.044 | 0.042 | 0.046 |
| | (0.04) | (0.05) | (0.05) | (0.04) |
| (ln) Sponsor experience | 0.049 | 0.052 | 0.051 | 0.053 |
| | (0.02) | (0.02) | (0.02) | (0.02) |
| Entry channel FE | Yes | Yes | Yes | Yes |
| Entry period FE | Yes | Yes | Yes | Yes |
| Team size FE | Yes | Yes | Yes | Yes |
| Intercept | Yes | Yes | Yes | Yes |
| Obs | 262 | 262 | 262 | 262 |
| Adjusted $R^2$ | 0.18 | 0.17 | 0.17 | 0.17 |

This table provides the results of multiple regressions of abnormal deal performance on the different levels of education and on specialized certifications of PE lead partner teams (see Eq. (4)). Because information about the academic degree of one LPT was not available, the sample entails 262 buyouts - one less than in the original sample - from 1997 to 2015. The dependent variable is abnormal EV CAGR. Levels of education (*JD/MD/PhD, master, higher academic degree or bachelor*) and *specialized certifications* are the main explanatory variables, and an interaction term between them is added to the regressions. I control for partner, deal and PE characteristics, and a set of fixed effects is added as well (entry channel FE; entry period FE; and team size FE). See variable definitions in Table A1. Robust standard errors, clustered for region, are shown in parentheses. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

## 4.4 Educational Profile and Abnormal Performance

Table 8 presents the base results to test H4. The impact of the educational profile of LPTs on *abnormal EV CAGR* is analysed. In this model, *business plus* and *business only* are introduced as the independent variables for educational profile[15], along with the relevant control variables and the set of fixed effects.

Confirming H4, the results show that *business plus* exhibits a significantly positive correlation ($\rho < 0.08$) with *abnormal EV CAGR*. Compared to LPTs with a non-business background, the teams with a broader educational profile have a higher *abnormal EV CAGR*, on average, by 0.017. This result is in line with the findings of Fuchs et al. (2022) and Degeorge et al. (2016) that revealed that LPTs with a broader educational profile tend to outperform.

Two new variables to control for PE characteristics (*higher academic degree* and *share specialized certifications*) are introduced in addition to the control variables from the first model. It is observed that *holding period*, *(ln) deal value*, *average work experience*, *average university ranking* and *(ln) sponsor experience* display results that are qualitatively similar to the previous findings. All other control variables in the regression model present a non-significant relationship with *abnormal EV CAGR*.

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[15] *Non-business* is excluded from the regression model to avoid multicollinearity.

*Table 8: Abnormal Performance Relative to Educational Profile – Base Results*

|  | Dependent variable = abnormal EV CAGR |
|---|---|
| Business plus | 0.017* |
|  | (0.00) |
| Business only | 0.029 |
|  | (0.04) |
| Average experience PE (years) | 0.001 |
|  | (0.00) |
| Average university ranking | -0.185** |
|  | (0.03) |
| Average work experience (years) | 0.006* |
|  | (0.00) |
| Holding period (years) | -0.050** |
|  | (0.01) |
| Inorganic deal | -0.032 |
|  | (0.02) |
| (ln) Deal value | -0.136*** |
|  | (0.01) |
| PEI 100 | 0.080 |
|  | (0.04) |
| (ln) Sponsor experience | 0.067* |
|  | (0.02) |
| Higher academic degree | -0.014 |
|  | (0.03) |
| Share specialized certifications | 0.033 |
|  | (0.02) |
| Entry channel FE | Yes |
| Entry period FE | Yes |
| Team size FE | Yes |
| Intercept | Yes |
| Obs | 257 |
| Adjusted $R^2$ | 0.21 |

This table provides the results of the regression of abnormal deal performance on PE lead partner team educational profile (see Eq. (5)). Because information about the educational profile of six LPTs was not available, the sample entails 257 buyouts - six less than in the original sample - from 1997 to 2015. The dependent variable is abnormal EV CAGR. *Business plus* and *business only* are the main explanatory variables. *Non-business* is excluded from the regression to avoid multicollinearity, thereby being designated as the reference category. I control for partner, deal and PE characteristics, and a set of fixed effects is included (entry channel FE; entry period FE; and team size FE). See variable definitions in Table A1. Robust standard errors, clustered for region, are shown in parentheses. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Table 9 reports the summary of the results of all the hypotheses investigated in this paper.

*Table 9: Summary of Results*

| Hypotheses | Description | Results | Prior Literature Supporting Results |
|:---:|:---|:---:|:---|
| **H1** | Higher levels of education among LPTs are positively associated with LBO performance. | Rejected | Chevalier and Ellison (1999); Gottesman and Morey (2006); Jelic, Zhou and Wright (2019); Zarutskie (2010). |
| **H2** | Specialized certifications among LPTs are positively associated with LBO performance. | Rejected | Gottesman and Morey (2006). |
| **H3** | The combination of both higher levels of education and specialized certifications among LPTs is positively associated with LBO performance. | Rejected | To the best of this author's knowledge, no prior literature has investigated this hypothesis yet. |
| **H4** | Broader educational profile among LPTs is positively associated with LBO performance. | Accepted | Degeorge et al. (2016); Fuchs et al. (2022). |

This table provides the results of all the hypotheses tested in this study, as well as the prior literature supporting these results.

## 4.5 Robustness Test

To validate the base results from H4, which indicate that LPTs with a broader educational profile tend to outperform those with a non-business background, I conduct a robustness test, in which *EV/EBITDA[16] multiple expansion* and EV/sales *multiple expansion* are used as proxies for deal-level performance. The same control variables used in the base model are also employed in this analysis.

I account for multiple expansion as one of the most relevant value drivers for equity returns (Acharya, 2013; Achleitner, Braun and Engel, 2011; Guo, Hotchkiss and Song, 2011; Hammer et al., 2022). I use *EV/EBITDA ME* (Achleitner, Braun and Engel, 2011; Hammer et al., 2022) and *EV/sales ME* as they are considered important valuation ratios

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[16] EBITDA is an acronym for Earnings Before Interest, Taxes, Depreciation and Amortization. It is one of the most frequently used measures to assess the financial health of a company and its ability to generate cash (Kliestik et al., 2020).

in the PE industry and are often used in the academic literature (Arcot et al., 2015; Gilligan and Wright, 2020; Hammer et al., 2022).

Table 10 displays the results of the robustness test. The results show that there is no significant relationship between *business plus* and *abnormal EV/EBITDA ME nor* between *business plus* and *abnormal EV/sales ME*, suggesting that LPTs with a broader educational profile perform no better than those with a non-business background. This means that the model specifications used to test H4 lack robustness. Thus, further research is required to investigate the impact of broader educational profile among LPTs on abnormal deal performance.

Regarding the control variables, it is observed that *average university ranking* is similar in sign and significance to the base results. Furthermore, *PEI 100* exhibits a significantly positive correlation with *abnormal EV/EBITDA* ($\rho < 0.09$) and with *abnormal EV/sales* ($\rho < 0.05$). *Holding period* displays a significantly negative correlation ($\rho < 0.03$) only with *abnormal EV/sales*, while *average experience PE* exhibits a significantly negative correlation ($\rho < 0.06$) only with *EV/EBITDA*. All other control variables display a non-significant relationship with *abnormal EV/EBITDA* and with *abnormal EV/sales*.

*Table 10: Robustness Test – Base Results*

| | Dependent variable = CAGR of abnormal performance | |
|---|---|---|
| | EV/EBITDA | EV/sales |
| Business plus | -0.007 | -0.015 |
| | (0.00) | (0.01) |
| Business only | 0.040 | 0.004 |
| | (0.02) | (0.01) |
| Average experience PE (years) | -0.004* | -0.003 |
| | (0.00) | (0.00) |
| Average university ranking | -0.091* | -0.109* |
| | (0.03) | (0.03) |
| Average work experience (years) | 0.006 | 0.001 |
| | (0.01) | (0.00) |
| Holding period (years) | -0.032 | -0.031** |
| | (0.02) | (0.00) |
| Inorganic deal | -0.009 | 0.002 |
| | (0.03) | (0.01) |
| (ln) Deal value | -0.032 | -0.016 |
| | (0.02) | (0.02) |
| PEI 100 | 0.093* | 0.058** |
| | (0.03) | (0.01) |
| (ln) Sponsor experience | -0.013 | 0.015 |
| | (0.05) | (0.01) |
| Higher academic degree | -0.039 | -0.073 |
| | (0.03) | (0.03) |
| Share specialized certifications | 0.038 | 0.030 |
| | (0.02) | (0.02) |
| Entry channel FE | Yes | Yes |
| Entry period FE | Yes | Yes |
| Team size FE | Yes | Yes |
| Intercept | Yes | Yes |
| Obs | 256 | 256 |
| Adjusted $R^2$ | 0.12 | 0.17 |

This table provides the results of two regressions of abnormal deal performance on PE lead partner team educational profile (see Eq. (5)). Because information about the educational profile of six LPTs was not available, the sample entails 257 buyouts - six less than in the original sample - from 1997 to 2015. The dependent variables are abnormal returns (EV/EBITDA and EV/sales). *Business plus* and *business only* are the main explanatory variables. *Non-business* is excluded from the regression to avoid multicollinearity, thereby being designated as the reference category. I control for partner, deal and PE characteristics, and a set of fixed effects is included (entry channel FE; entry period FE; and team size FE). See variable definitions in Table A1. Robust standard errors, clustered for region, are shown in parentheses. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

# 5. Discussion and Conclusions

The aim of this study is investigating the role that the educational background of LPTs plays in predicting performance in the PE industry. In particular, this paper analyses whether higher levels of education and/or specialized certifications among LPTs are positively associated with buyout performance. Additionally, this study examines whether LPTs with a broader educational profile exhibit superior performance.

Although no significant relationship was found regarding the impact of higher levels of education among LPTs on abnormal deal performance, this result is in line with the financial economics literature, which also did not reach a consensus yet on this matter (Chevalier and Ellison, 1999; Gottesman and Morey, 2006; Jelic, Zhou and Wright, 2019; Zarutskie, 2010). Furthermore, no significant relationship was detected between specialized certifications and abnormal deal performance, which is consistent with the findings of Gottesman and Morey (2006) that reveal that managers holding a CFA designation perform no better than other fund managers.

It is important to highlight that establishing a causal relationship between education and performance is challenging, as there are other factors - such as experience, cognitive intelligence, competence, motivation, creative thinking and leadership skills - that may also influence performance, making it difficult to isolate the impact of education alone (Mumford et al., 2017; Siepel, Camerani and Masucci, 2021).

An alternative interpretation regarding the non-significant findings could be that lead partners who possess lower degrees of education and/or do not possess specialized certifications may exert greater effort and demonstrate increased dedication and diligence as compensation. Moreover, lead partners who achieved higher levels of education and specialized certifications are likely to have less work experience relative to others, as they allocated a greater portion of time gaining theoretical knowledge while their lower-educated peers were already converting their theoretical knowledge into practical skills.

To the best of this author's knowledge, this study is the first to examine the impact of the combination between higher levels of education and specialized certifications among LPTs on buyout performance. Although no significant relationship was found between such combination and abnormal performance, this result once more suggests that levels

of education and specialized certifications among LPTs do not affect performance. This applies to either individual variables or their combined effects.

Although the previous findings may suggest that educational characteristics do not impact abnormal deal performance, there is another dimension of education that may indicate otherwise. This study reveals that compared to LPTs with a non-business background, the teams with a broader educational profile tend to outperform. This result is supported by the findings of Fuchs et al. (2022) and Degeorge et al. (2016). However, as the model assumptions from this paper lack robustness, the question whether a broader educational profile among LPTs can positively affect buyout performance still remains open.

## 5.1 Managerial Implications

This paper presents interesting implications for the PE industry. First, as no significant influence of levels of education and/or specialized certifications on buyout performance was found, this suggests that PE lead partners rather invest their time and efforts in gaining work experience and practical skills than solely focusing on attaining theoretical knowledge. Similarly, PE firms should not consider levels of education and/or specialized certifications as decisive factors when hiring lead partners. Instead, they should adopt a continuous training and development approach, to ensure their lead partners possess a comprehensive set of skills and a deep understanding of the PE industry. Basing the hiring process solely on educational qualifications can be limiting because it does not always reflect an individual's practical knowledge or their ability to adapt to changing industry dynamics. The findings of this study may be an indication that experience and practical skills are more relevant than educational characteristics when it comes to evaluating buyout performance.

On the other hand, this paper finds indication that LPTs with broader educational profile may outperform those with non-business background. Nonetheless, as the model specifications lack robustness, this result should be interpreted with caution. In case more empirical evidence is found in this direction in further studies, PE firms could use this knowledge to guarantee that at least one PE partner in the LPT has a business background and one has a non-business background (this can be the same person) in order to enhance

buyout performance. This would be of great relevance in a performance-driven industry such as PE.

## 5.2. Limitations and Implications for Future Research

As it is usually the case in academic literature, there are also limitations associated with this study. Acknowledging and addressing these limitations may outline important future avenues for research. First, as it is the case in other studies (Hammer et al., 2022; Strömberg, 2008) the sample of buyouts used in this research comes predominantly from Europe (84.8%; see Table 1) and consists of a relatively small size (263 observations). The reason behind this is the high disclosure requirements in Europe and the limited data availability of educational backgrounds of lead partners. Gathering comprehensive and accurate data on this subject can be challenging as information is not publicly available. Thus, further research could utilize larger datasets from a broader spectrum of countries around the world to examine whether the results may be generalized to other contexts.

Second, from the dataset used in Hammer et al. (2022), it is not possible to distinguish the individual roles of the PE lead partners in the buyout or the amount of efforts and time invested in each deal. Further research could also analyse these roles using detailed surveys. This would provide additional insights on how the educational background of lead partners affects strategic decision-making throughout the buyout.

Third, the performance of leader partner teams may suffer influence of numerous external factors, such as market conditions, industry characteristics, countries specificities and regulatory changes. These factors can overshadow the impact of the educational background of LPTs on performance and make it difficult to draw definitive conclusions. Further research could also control for these different external factors.

Fourth, the method used to compute the abnormal deal performance could be refined by comparing the CAGRs of the target firms relative to the respective industry median, instead of the most suitable non-PE backed peer. This approach was used in Hammer et

al. (2022)[17] and allows for a broader perspective and a more comprehensive evaluation of the buyout performance relative to its industry peers.

Fifth, although there is an indication that LPTs with broader educational profile may outperform those with non-business background, it would be interesting to investigate further whether there is an optimal mix of different educational backgrounds within the LPTs. For instance, it could be interesting to examine whether LPTs with strong quantitative backgrounds tend to outperform their other peers, as already suggested by Zarutskie (2007).

Lastly, this study feeds into the discussion on what matters more: education or experience. As most of the findings of this research were non-significant, this may be an indication that work experience among LPTs could play a bigger role than educational background in predicting buyout performance. Empirical evidence was found in this matter regarding the venture capital industry (Zarutskie, 2007). That, however, is yet to be proven concerning the PE industry. Thus, future research could address the question of what is a stronger predictor of buyout performance - education or experience.

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[17] Hammer et al. (2022) use the industry median CAGRs based on industry peers within the same holding period as the respective buyout from the largest available stock index of each country or region.

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# 7. Appendix

*Table A.1: Variable Definitions*

| Variable | Description |
|---|---|
| **Panel A: Dependent Variables** | |
| *Abnormal EV CAGR* | Difference between the compound annual growth rate of target firm's enterprise value (EV) from deal entry to deal exit and the compound annual growth rate of EV of the respective twin firm within both the same target region and time horizon. Values are winsorized at the $5^{th}$ and $95^{th}$ percentiles. |
| *Abnormal EV/EBITDA ME* | Difference between the compound annual growth rate of target firm's EV/EBITDA multiple expansion (EV/EBITDA ME) from deal entry to deal exit and the compound annual growth rate of EV/EBITDA multiple expansion of the respective twin firm within both the same target region and time horizon. Values are winsorized at the $5^{th}$ and $95^{th}$ percentiles. |
| *Abnormal EV/sales ME* | Difference between the compound annual growth rate of target firm's EV/sales multiple expansion (EV/sales ME) from deal entry to deal exit and the compound annual growth rate of EV/sales multiple expansion of the respective twin firm within both the same target region and time horizon. Values are winsorized at the $5^{th}$ and $95^{th}$ percentiles. |
| *Non-peer-adjusted EV CAGR* | Compound annual growth rate of target firm's EV from deal entry to deal exit. |
| *Non-peer-adjusted EV/EBITDA ME* | Compound annual growth rate of target firm's EV/EBITDA multiple expansion (EV/EBITDA ME) from deal entry to deal exit. EV/EBITDA is defined as enterprise value divided by respective earnings before interest, taxes, depreciation and amortization (EBITDA). |
| *Non-peer-adjusted EV/sales ME* | Compound annual growth rate of target firm's EV/sales multiple expansion (EV/sales ME) from deal entry to deal exit. EV/sales is defined as enterprise value divided by respective sales. |
| **Panel B: Independent Variables/Fixed Effects** | |
| *Explanatory Variables for Levels of Education* | |
| *JD/MD/PhD* | *JD/MD/PhD* is a dummy variable that is equal to unity if the highest degree among all involved PE lead partners in the respective buyout is a Juris Doctor, Doctor of Medicine or Doctor of Philosophy degree, and zero otherwise. |
| *Master* | *Master* is a dummy variable that is equal to unity if the highest degree among all involved PE lead partners in the respective buyout is an MBA and/or a non-MBA master's degree, and zero otherwise. |

| | |
|---|---|
| *Higher academic degree* | *Higher academic degree* is a dummy variable that is equal to unity if the highest degree among all involved PE lead partners in the respective buyout is either a JD/MD/PhD or an MBA or a non-MBA master's degree, and zero otherwise. |
| *Bachelor* | *Bachelor* is a dummy variable that is equal to unity if the highest degree among all involved PE lead partners in the respective buyout is a bachelor's degree, and zero otherwise. |

*Explanatory Variables for Specialized Certifications*

| | |
|---|---|
| *Specialized Certifications* | *Specialized certifications* is a dummy variable that is equal to unity if at least one of the involved PE lead partners in the respective buyout attained a specialized certification (CFA, CA or other), and zero otherwise. |
| $Educ_{n,i}.Cert_{n,i}$ | Interaction term between *Levels of Education* and *Specialized Certifications*. |

*Explanatory Variables for Educational Profile*

| | |
|---|---|
| *Business only* | *Business only* is a dummy variable that is equal to unity if all the involved PE lead partners in the respective buyout only have background in business, and zero otherwise. |
| *Business plus* | *Business plus* is a dummy variable that is equal to unity if at least one of the involved PE lead partners in the respective buyout has a background in business and one has a non-business background (this could be the same PE lead partner), and zero otherwise. |
| *Non-business* | *Non-business* is a dummy variable that is equal to unity if none of the involved PE lead partners in the respective buyout have background in business, and zero otherwise. |

*Control Variables for PE Partner Characteristics*

| | |
|---|---|
| *Average University Ranking* | Average university ranking of all involved PE partners in the respective buyout. For each university in which a lead partner obtained a degree, the relative ranking compared to other universities in the same country is calculated in order to account for local bias in the university choice. Following Hammer (2022), three different rankings are used: *Times Higher Education 2019*, *Academic Ranking of World Universities 2019*, *Financial Times European Business Schools 2019*. For comparability reasons and to facilitate interpretation, each ranking is normalized based on the total number of universities, using the following formula (Tofallis, 2012): $$ranking_{normalized} = \frac{(ranking - ranking_{minimum})}{(ranking_{maximum} - ranking_{minimum})},$$ where $ranking$ represents the relative position of the respective university compared to other universities in the same country, $ranking_{maximum} = 1$ and $ranking_{minimum}$ represents the total number of ranked universities in the respective country. If multiple rankings are available for the respective university, the best ranking for each university is computed. If a lead partner attended multiple universities, the best ranking out of all attended universities is computed. If none of the three rankings are available for the universities attended by the respective lead partner, the normalized ranking is computed as 0. If no |

information is available about the universities attended by the respective lead partner, the normalized ranking is computed as the average of the normalized ranking of all lead partners.

*Average Work Experience*    Average work experience in years of all involved PE lead partners in the respective buyout. For each lead partner, work experience is computed as the deal entry year minus the work experience start year of the respective lead partner.

*Average PE Experience (tenure)*    Average PE experience in years of all involved PE lead partners in the respective buyout. For each lead partner, PE experience is computed as the deal entry year minus the first year PE experience of the respective lead partner.

*Control Variables for deal-, firm- and PE sponsor-specific characteristics*

*(ln) Deal Value*    Natural logarithm of deal value in million USD (computed as the target firm's entry enterprise value).

*Holding Period*    Time in years between entry and exit of the respective buyout.

*Inorganic Deal*    Classification designating the main strategy of the buyout (organic/inorganic). Dummy variable that is equal to unity if the target firm made an add-on transaction after the buyout.

*PEI 100*    2018 ranking of the 100 largest global PE firms. PEI 100 is a dummy variable that is equal to unity if one of the PE sponsors involved in the respective buyout is on the list, and zero otherwise.

*(ln) Sponsor Experience*    Natural logarithm of the total number of transactions executed by the lead PE investor until the respective buyout.

*Fixed Effects*

*Entry Channel*    Classification of buyouts into groups: 'public-to-private', 'private-to-private', 'divisional', 'financial', 'privatization', 'receivership' and 'other' (Hammer et al., 2022).

*Entry Period*    Entry period in which the respective buyout took place, as defined in Hammer et al. (2022). 'New economy': 1997-2000; 'post-new economy': 2001-2003; 'buyout boom': 2004-2007; 'financial crisis': 2008-2010 and 'post-financial crisis': 2011-2015.

*Team Size*    Size of the buyout involved in each buyout, as defined in Hammer et al. (2022). 'Single partner': one partner; 'duo': two partners; 'medium team': three partners; 'large team': more than three partners.

This table provides the variable definitions of all the dependent and independent variables, as well as the fixed effects used in this study. Some definitions of these variables are based on Hammer et al. (2022).

*Table A.2: Fama-French 12-Industry Classification*

| FF 12 Industry Code | Industry Category | Industries |
|---|---|---|
| 1 | Consumer Nondurables | Food, Tobacco, Textiles, Apparel, Leather, Toys. |
| 2 | Consumer Durables | Cars, TV's, Furniture, Household Appliances. |
| 3 | Manufacturing | Machinery, Trucks, Planes, Chemicals, Office Furniture, Paper, Commercial Printing. |
| 4 | Energy | Oil, Gas, and Coal Extraction and Products. |
| 5 | Chemicals | Chemicals and Allied Products. |
| 6 | Business Equipment | Computers, Software, and Electronic Equipment. |
| 7 | Telecom | Telephone and Television Transmission. |
| 8 | Utilities | Utilities. |
| 9 | Shops | Wholesale, Retail, and Some Services (Laundries, Repair Shops). |
| 10 | Health | Healthcare, Medical Equipment, and Drugs. |
| 11 | Money | Finance. |
| 12 | Other | Mines, Construction, Building Materials, Transportation, Hotels, Bus Services, Entertainment. |

This table provides a detailed overview of the Fama-French 12-industry classification.