



# Institutions and the real effects of private equity buyouts: A meta-analysis

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## Abstract

**Research Summary:** This study reviews four decades of fragmented and contradictory empirical literature on the real effects of private equity (PE) buyouts on portfolio companies, differentiating between efficiency and growth outcomes. We hypothesize how institutional forces, including regulatory, cognitive, and normative institutions explain heterogeneity in post-buyout efficiency and growth across time and countries. We argue that competition and population-level learning have shifted the cognitive frame underlying value creation in buyouts from financial engineering toward operational engineering and strategic entrepreneurship. Using meta-analysis, we find support for several of our hypotheses using samples from 66 empirical studies across the finance, management, economics, and entrepreneurship disciplines.

**Managerial Summary:** This study delves into four decades of fragmented private equity (PE) literature to unravel the practical implications for post-buyout efficiency and growth. Using meta-analysis, we explore the role of institutional forces—regulatory, cognitive, and normative—in shaping outcomes across diverse temporal and geographical

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contexts. We observe an overall paradigm shift in PE value creation over time, transitioning from focusing on financial engineering to operational value creation and strategic entrepreneurship. This transformation is driven by heightened competition and widespread population-level learning. Validating our hypotheses through a thorough examination of 66 empirical studies spanning finance, management, economics, and entrepreneurship disciplines, our findings offer insights for policymakers and practitioners navigating the nuanced landscape of PE buyouts.

#### KEYWORDS

institutional theory, meta-analysis, private equity, real effect, strategic entrepreneurship

## 1 | INTRODUCTION

Private equity (PE) buyouts (often referred to as leveraged buyouts) are transactions in which a financial intermediary, the PE fund, acquires a majority shareholder stake in a mature company.<sup>1</sup> These investments deliver attractive financial returns to PE investors and their shareholders. However, the extent to which PE impacts post-buyout efficiency and/or growth in portfolio companies through governance and operational engineering—what we refer to as the *real* impact of PE—is less conclusive (DeGeorge et al., 2016; Morris & Phalippou, 2020).<sup>2</sup> For example, some studies report a positive impact of PE on the operational efficiency (e.g., Alperovych et al., 2013; Meuleman, Amess, et al., 2009; Meuleman, Wright, et al., 2009) and growth of their portfolio companies (e.g., Cohn et al., 2022; Jelic et al., 2019), whereas others report negative effects (e.g., Antoni et al., 2019). Given the causal complexity surrounding organizational performance (March & Sutton, 1997), isolating the direct impact of PE on portfolio companies is challenging, which may explain some of the inconclusive findings. However, one important reason for the inconclusive findings may be that most studies have examined PE's real impact within a given institutional context, that is, within a given country and specific time frame. The real effects may, however, vary across institutional contexts (McGrath & Nerkar, 2023). The institutional context plays a crucial role in shaping firm behavior (Scott, 2003) and impacts the effectiveness of corporate governance instruments (Aguilera & Jackson, 2010), including ownership constellations (Bruton et al., 2010; Cumming, Fleming, et al., 2010). This article will study how the effects of PE-backed buyouts differ depending on country-level differences and differences over time. To do so, we conduct a meta-analysis by synthesizing findings from numerous studies that have investigated the impact of PE on their buyout targets within diverse institutional contexts.

Using Scott's (1995) three-pillar framework, we argue that regulatory, normative, and cognitive institutions can *enable* or *constrain* PE investors' value-adding capacity and thus moderate their real effects. This might explain why some studies report positive effects, and others negative effects, depending on the institutional context in which the study took place. Scott's three-pillar framework is useful for studying PE effects on portfolio companies, as it captures how formal rules, social norms, and shared beliefs shape organizational behavior in different contexts. The regulatory pillar highlights how formal rules, including the legal environment, shape organizations' behavior. Cumming et al. (2007) demonstrate how shareholder protection laws influence PE's portfolio companies' governance and performance. The normative pillar constitutes shared values and norms that specify how things should be done

(DiMaggio & Powell, 1983) and are manifested in national culture (Hofstede, 2001; Scott, 1995). For example, Boucly et al. (2011) highlight how the normative pillar affects PE's portfolio companies' employment and growth in the stakeholder-oriented context of France. The cognitive pillar refers to the frames through which meaning is created in society (DiMaggio & Powell, 1983) and that guide a common frame of reference about "how to act" legitimately (Meyer et al., 2009). Wright et al. (2001) show how the cognitive pillar shapes entrepreneurial activities within PE's portfolio companies. While regulatory and normative institutions are relatively stable within a country, cognitive institutions are inherently dynamic due to changing competition and population-level learning (Miner & Haunschild, 1995). Taking a dynamic view on cognitive institutions, we argue that a maturing PE industry and increased levels of competition have shifted PE's logic from purely focusing on financial and governance engineering (Jensen, 1986) to also focusing on operational engineering and strategic entrepreneurship (Wright et al., 2000). Taken together, we draw on institutional theory to formulate hypotheses on the regulative, normative, and cognitive institutional forces that may explain variation in the real effects of PE-backed buyouts across countries and time.

We test our hypotheses on the role of a buyout's institutional environment through meta-analysis, allowing us to introduce moderators that have not been captured in underlying studies due to their focus on (a) specific country(ies) or time periods. It is a well-accepted research technique in entrepreneurship (e.g., Combs et al., 2021; Rosenbusch et al., 2013) and institutional literatures (e.g., Lohwasser et al., 2022; Stephan et al., 2022). In particular, we examine the real impact of PE by aggregating effect sizes across samples extracted from extant empirical research (Borenstein et al., 2011). We enrich the effect size data with cross-country institutional data to capture differences in regulatory and normative institutions and with longitudinal data to capture changes in competition and population-level learning. Our meta-analysis aggregates 204 samples studying efficiency (together including 209,195 companies) and 116 samples on growth (117,476 companies) from 66 empirical studies across the finance, management, economics, and entrepreneurship disciplines. Our analysis covers buyouts occurring between 1971 and 2018, spanning the emergence of the buyout phenomenon in the 1970s until the recent surge in buyout activity. We show that the value-creation strategies of PE firms, as manifested in the performance of their portfolio companies, are driven by institutional differences across countries and institutional dynamics within countries.

Our study makes several contributions to the current academic debate on the real impact of PE. First, we quantitatively synthesize core relationships under study in the PE literature, that is, the real effect of PE-backed buyouts on efficiency and growth, which is important since there is still considerable debate as to whether PE enhances portfolio company performance (Morris & Phalippou, 2020). We show that, in general, PE is strongly associated with post-buyout efficiency in the early years of the industry and spurs growth in the later period.

Second, we show how institutional dimensions affect the real impact of PE. While it is widely accepted that the institutional context matters for value-adding and corporate governance effectiveness (Aguilera & Jackson, 2010; Capron & Guillén, 2009), few PE studies adopt a multi-institutional study design. While regulatory heterogeneity has received some attention in the PE literature, normative and cognitive institutional heterogeneity have not. Further, our empirical design allows for examining the *dynamic* nature of institutions, which has received scant attention in the context of value-creation strategies (Kern & Gospel, 2023). While most studies treat institutions as static in time, we contribute to institutional theory by showing how taken-for-granted ways of working can evolve through competition and population-level learning. Specifically, we show how cognitive frames driving PE value creation have shifted over time. While efficiency improvements have always been a key value-creation strategy, growth enhancements have only become prevalent in later periods. As such, we respond to McGrath and Nerkar's (2023) call to study the dynamic nature of the PE industry.

Third, the PE literature is not properly integrated and shows a segmentation between entrepreneurship, management, finance, and economics journals (Cumming et al., 2023; Cumming & Johan, 2017). Our study's final contribution is its interdisciplinary nature, synthesizing findings across various literatures. By including almost 50 years of research data, we bring coherence to findings that differ across studies and provide a holistic view of PE's real impact.



## 2 | THEORY AND HYPOTHESES

Drawing on a systematic literature review, McGrath and Nerkar (2023) conclude that the current empirical evidence remains inconclusive regarding the conditions under which PE creates or destroys value. They speculate that differences in the surrounding legal and political environments might impact PE value creation (McGrath & Nerkar, 2023; Wright et al., 2019). To illustrate this, Fidmuc et al. (2013) report a significant positive effect on post-buyout efficiency in the United Kingdom, while Bertoni et al. (2013) report a significant negative effect in Spain in the same period. The United Kingdom is characterized by a shareholder-focused environment and a risk-taking culture, while Spain is more stakeholder-focused with less investor protection and a risk-avoiding culture. This hints that the regulative and normative institutional environment in which a buyout occurs may indeed influence PE value creation.

Moreover, McGrath and Nerkar (2023) stress that the PE industry is dynamic: past PE behavior may not reflect current behavior anymore. For example, early studies within the United States show highly significant effects for efficiency but not for growth (Lichtenberg & Siegel, 1990), while more recent US studies find lower efficiency but higher growth effects (Cohn et al., 2014; Spaenjers & Steiner, 2024). Early research studied a PE market that was still in its infancy, while later research focused on a highly developed, more sophisticated, and allegedly more competitive PE market. This conflicting evidence suggests that it matters where and when a buyout takes place: Scholars increasingly acknowledge the importance of *where* and *when* a buyout occurs, highlighting the need to examine how institutional contexts influence post-buyout value creation (McGrath & Nerkar, 2023; Wright et al., 2019).

To address this challenge, we propose Scott's (1995) three-pillar institutional framework, encompassing regulative, normative, and cognitive pillars, as these cover institutional dimensions posited to be important for PE buyouts. The regulatory pillar is linked to regulatory forces (e.g., shareholder protection), which agency theory has identified to be essential to capture value creation (Jensen, 1986; La Porta et al., 2000). The normative pillar is linked to normative forces (e.g., cultural values such as individualism and risk-taking), which strategic entrepreneurship theory has identified to be essential to creating post-buyout value (Wright et al., 2000). Finally, the cognitive pillar is linked to the prevailing industry logic, which considers industry-wide learning in PE (Manigart, 1994). As such, Scott's (1995) three-pillar framework allows to incorporate more static institutional dimensions like the regulatory and normative forces and a dynamic dimension describing changes over time within the cognitive pillar. Our meta-analysis is hence uniquely positioned to address the mixed empirical findings on PE buyouts, which partly arise because individual studies rarely consider institutional moderators or use fragmented frameworks.

In the following sections, we will first outline agency theory and strategic entrepreneurship theory, the two dominant value creation logics in PE buyouts. We will then develop our hypotheses by applying institutional theory to contextualize the relevance of these value creation logics within a buyout setting.

### 2.1 | Value creation in PE buyouts

Agency theory has been one of the most popular frameworks for studying value creation—or destruction—in PE buyouts. Agency theory highlights that the separation of ownership and control creates incentive misalignments between agents (i.e., the firm's managers) and principals (i.e., the firm's shareholders), especially in publicly listed companies. This may induce managers not to act in the best interest of the shareholders, thereby impeding value creation (Eisenhardt, 1989; Jensen & Meckling, 1976). Following this view, PE investors may acquire companies and create shareholder value through financial engineering and enhanced governance. Reducing agency risks is achieved through aligning the management team's objectives with those of investors (Jensen, 1986), through debt bonding, requesting management to acquire equity ownership, active monitoring, and reinforcing the board of directors. This agency-based view of buyouts has been particularly relevant for public-to-private buyouts focusing on mature, public firms with widely held ownership. Its primary focus is on optimizing the firm's operations by cutting down over-spending, over-diversification, and overinvestment. Hence, it has been mainly directed at enhancing efficiency by

preventing managerial perquisites and other value-destroying investments (Bruton et al., 2010; Klein et al., 2013; Meuleman, Amess, et al., 2009).

The narrow agency view depicts only a partial view of buyouts as it attaches little importance to PE investors' and management's ability to enhance their upside potential (Wright et al., 2000). High debt levels would imply that cost-cutting and short-termism would be a central objective under PE ownership. As a result, long-term investments, such as in R&D, might be postponed. This is, however, not in line with more recent empirical evidence as buyouts have been shown to foster innovation (e.g., Amess et al., 2016) and spur organizational growth (Biesinger et al., 2023). A strategic entrepreneurship view of buyouts hence provides a complementary perspective to agency theory as it acknowledges the entrepreneurial nature of buyouts (Klein et al., 2013; Makadok, 2003; Wright et al., 2000) by exploiting the portfolio firm's full growth potential through expanding the firm's resource base and capabilities (Bertoni, 2017; Ireland et al., 2003). Importantly, agency and strategic entrepreneurship perspectives are not mutually exclusive. In contrast, they may reinforce each other: important synergies may exist between improving governance and reducing agency risks on the one hand and exploiting additional competencies on the other hand (Makadok, 2003). Whereas agency theory focuses on incentive realignment, strategic entrepreneurship focuses on value creation through additional resources and competencies PE investors may inject (Hendry, 2002). Enhancing governance and exploiting strategic entrepreneurship can hence be employed simultaneously, aiming to offer more comprehensive post-buyout value creation.

## 2.2 | The role of the institutional context

Previous research in PE has identified numerous factors influencing the performance of PE-backed companies, highlighting the complexity of understanding performance outcomes and making it difficult to isolate causal mechanisms (March & Sutton, 1997). Whereas investor (e.g., investor experience, industry focus) and deal-related moderators (e.g., pre-buyout ownership structure, managerial ownership stake) have received considerable attention in explaining variation in PE's real impact (for a recent review, see McGrath & Nerkar, 2023), the broader institutional environment has not (Wright et al., 2019). This is surprising as not only the regulatory environment (e.g., Capron & Guillén, 2009; La Porta et al., 1998, 2000), but also the normative (e.g., Hammer et al., 2018) and cognitive environment (e.g., Meuleman & Wright, 2011; Sen & Puranam, 2022) are critical for equity investments. Indeed, institutional differences impact the effectiveness of corporate governance (Aguilera & Jackson, 2003; La Porta et al., 2000), strategic decision-making (Kern & Gospel, 2023), and resource configurations (Oliver, 1997), and as such, contextualize influences of both agency and strategic entrepreneurship.

Formal and informal institutions provide restrictions by defining legal, normative, and cultural boundaries for the behavior of individuals and firms (North, 1990; Scott, 1995, 2003). They also incentivize actors by providing guidelines and resources for taking action (Scott, 1995; Zhou & Guillén, 2019). The effectiveness of PE buyouts, as corporate governance mechanisms, is shaped by their institutional context. Given the multi-dimensional nature of institutions (Acemoglu & Johnson, 2005) and in line with other institutional research on PE (e.g., Bruton et al., 2005), we follow Scott's (1995) three-pillar classification. These pillars—regulative, normative, and cognitive institutions—help to explain institutional variation across countries. Moreover, institutions are not stable in time but are shaped by interactions among organizations (North, 1995). As such, they also help to understand how an industry changes over time, for example, driven by competition and population-level learning, which shape cognitive institutions. Even if these pillars are related in complex ways, studying them separately makes sense in the context of PE because each operates through different mechanisms and influences PE buyouts in distinct ways: the regulative pillar affects compliance and governance, the normative pillar shapes stakeholder interactions, and the cognitive pillar impacts perceptions and legitimacy within markets. We elaborate on the three pillars hereafter.



## 2.3 | The regulatory pillar

The regulatory pillar centers on the explicit rules and laws set by governments and regulatory bodies to regularize behaviors (Scott, 1995). The extent to which investors are legally protected, including the quality of contract and property rights enforcement and the effectiveness of courts (Kaufmann et al., 2009), influences buyout outcomes by reducing agency costs and alleviating information asymmetries, hence fostering post-buyout efficiency and growth.

First, in countries with higher legal protection, PE investors can enforce performance-based contracts that align managerial incentives with efficiency and growth goals (Lerner & Schoar, 2005; Wynant et al., 2023). Effective legal protection hence allows investors to provide managers with ample discretion to achieve predefined objectives, fostering firm performance (Crossland & Hambrick, 2011). For instance, linking management compensation to achieving specific EBITDA targets, successful market expansion, or operational efficiency metrics such as working capital optimization (Biesinger et al., 2023), directly reduces inefficiencies and motivates management to focus on growth strategies (Johan & Najjar, 2010).

Second, stronger legal enforcement enhances corporate governance effectiveness (Aguilera & Jackson, 2003), for example, by promoting independent board member engagement to oversee management (Uribe-Bohorquez et al., 2018). This ensures shareholder interests are prioritized (Aguilera et al., 2008), mitigating agency costs and increasing managerial accountability. Investors are enabled to oversee management implementing value-enhancing operational strategies (Klapper & Love, 2004), such as restructuring supply chains or optimizing working capital, directly contributing to efficiency improvements (Biesinger et al., 2023).

Third, stronger investor protection alleviates information asymmetry, ensuring PE investors can make informed decisions both at entry and exit (Pe'er & Gottschalg, 2011). This reduces risks associated with managerial opportunism and hence agency costs (Koirala et al., 2020). It further enables PEs to confidently commit to implementing value-creation strategies (Cumming, Schmidt, & Walz, 2010) as the newly created value can be more easily captured at exit (La Porta et al., 2000). This enhances the effectiveness of growth strategies in line with strategic entrepreneurship theory. We therefore propose:

**Hypothesis 1.** *Post-buyout (i) efficiency and (ii) growth are more positively impacted in countries with stronger investor protection.*

Next to directly impacting post-buyout efficiency and growth, an investor-friendly regulatory environment has an additional influence by enhancing the development and efficiency of public equity markets (La Porta et al., 1997). Specifically, strong investor protection laws instill confidence among market participants, reduce informational asymmetry, and promote integrity through more fair and efficient market practices. These significantly shape investors' incentives to implement efficiency-enhancing and growth-promoting strategies.

First, well-developed equity markets provide lucrative exit opportunities such as initial public offerings (IPO), which are critical for realizing shareholder returns (Nahata et al., 2014; Taussig & Delios, 2015). Because IPO success depends heavily on firm profitability and growth (Cumming, Schmidt, & Walz, 2010), PE investors are incentivized to implement efficiency-enhancing or growth-oriented investments, such as strategic market expansion or product innovation. These actions help to position the firm as a strong IPO candidate.

Second, well-developed equity markets attract institutional investors who can better assess and value operational improvements and growth initiatives. These markets' superior liquidity further reduces IPO underpricing and enables more accurate pricing of PE value creation (Faure-Grimaud & Gromb, 2004). Additionally, the higher valuations placed on growth opportunities (Baker et al., 2003) encourage PE investors to prioritize growth investments.

Third, the benefits of well-developed equity markets extend to mergers and acquisitions (M&A), PE's most frequent exit mechanism (Strömberg, 2008; Uddin & Chowdhury, 2021). Liquid public equity markets enhance M&A activity and valuation by serving as crucial performance benchmarks for PE investments. This creates competitive

pressures to deliver superior returns, driving more aggressive value-creation strategies (Choi & Jeon, 2011). Recent IPO underpricing can additionally inform acquirers about growth opportunities in private firms from the same industry (Aktas et al., 2016), resulting in more and higher quality private deals and a lower probability that an M&A deal will be forsaken (Kim & Song, 2017). Thus, well-developed equity markets not only enhance the financial returns of PE exits but also drive efficiency improvements and growth strategies throughout the PE ownership period by setting higher standards for performance and facilitating the realization of created value. Hence:

**Hypothesis 2.** *Post-buyout (i) efficiency and (ii) growth are more positively impacted in countries with stronger public equity markets.*

## 2.4 | The normative pillar

Normative institutions consist of societal values and norms that specify the goals and objectives in society and the means to pursue them, in other words, “how things should be done” (Scott, 1995). Organizations behave in a way that is consistent with how others expect them to do (DiMaggio & Powell, 1983) and is manifested in national culture (Hofstede, 2001). Among these, cultural dimensions such as individualism have been identified as significant drivers of firm behavior and outcomes, including PE buyouts (Busenitz et al., 2000; Hammer et al., 2018; Li & Halebian, 2022). Hofstede (2001, p. 225) defines an individualistic society as “a society in which the ties between individuals are loose: everyone is expected to look after her/his immediate family only.” Individualism is closely linked with incentives, which are central to PE value creation (Shane, 1993; Tiessen, 1997), and emphasizes personal autonomy, achievement, and the pursuit of self-interest over collective goals (Hofstede, 2001; Hofstede et al., 2010).<sup>3</sup> This creates both opportunities and challenges for efficiency and growth-based value creation in PE buyouts.

First, individualistic cultures, emphasizing personal autonomy and achievement, exacerbate pre-buyout agency risks, as managers may prioritize their interests over the success of the organization and its shareholders. However, PE buyouts are particularly effective in mitigating such risks through active governance mechanisms such as managerial equity ownership and monitoring. The intrinsic autonomy in individualistic cultures further allows for greater managerial discretion, enabling faster decision-making and the pursuit of efficiency-oriented strategies. In contrast, more collectivistic cultures are more consensus-based and respect all firm stakeholders, potentially at the expense of shareholders (Crossland & Hambrick, 2007, 2011).

Second, individualistic cultures prioritize materialistic achievement (Gupta et al., 2018) and promote entrepreneurial mentality (Busenitz et al., 2000; Shane, 1993). PE investors capitalize on these characteristics by providing resources and strategic direction, enabling management to implement growth strategies, such as entering new markets or launching innovative products.

Nevertheless, individualistic societies might also pose challenges, such as reduced collaborative efforts and heightened agency risks due to a focus on personal achievements and autonomy (Earley, 1989; Gil et al., 2019). If unmanaged, these risks can hinder post-buyout value creation. For example, management might prematurely leave the company in pursuit of other activities that are better aligned with their personal goals or might hold up the company for personal interests. PE investors typically address this risk through strong contractual mechanisms and enhanced corporate governance to foster goal alignment and mitigate post-buyout agency conflicts (Wynant et al., 2023). Although contracts are never complete and might not fully substitute for trust (Wynant et al., 2023), they should at least partially mitigate the enhanced agency risks associated with individualistic cultures. Thus, the characteristics of individualistic societies—enhanced managerial autonomy, entrepreneurial orientation, and an emphasis on personal success—create both the potential for value creation and the need for active governance. By addressing these cultural dynamics, PE investors enhance operational efficiency and enable strategic entrepreneurship, driving both efficiency and growth:



**Hypothesis 3.** *Post-buyout (i) efficiency and (ii) growth are more positively impacted in individualistic countries.*

## 2.5 | The cognitive pillar

The third institutional dimension, the cognitive dimension, refers to the frames through which meaning is created in society (DiMaggio & Powell, 1983) based upon scripts, schemas, shared conceptions, and logics of action that guide a common frame of reference about “how to act” legitimately (Meyer et al., 2009). The cognitive practices may evolve over time, however, as actors interpret, apply, adapt, contest, and refine them under environmental changes (Ingelsböck et al., 2019). In the context of PE, these practices are, for example, encapsulated in the value creation plans PE firms develop for their portfolio companies before they invest. Value creation plans consist of strategies and operational actions (e.g., use of leverage, investments or divestments, working capital improvements, pricing strategies, M&As) to be implemented to generate returns (e.g., Acharya et al., 2013; Meuleman, Amess, et al., 2009; Wright et al., 2001). Recent evidence using detailed investment memos of PE firms shows how value-creation strategies have shifted and expanded over time (Biesinger et al., 2023).

We argue that the practice of PE investing and associated value-creation logics have evolved due to competitive pressures and industry-wide learning. The PE industry emerged in the 1970s, driven by the de-conglomeration of large, public US businesses and public-to-private transactions. This setting provided ample opportunities to reduce agency risks (Jensen, 1986) through financial engineering, which accordingly was the common frame of reference in the industry. Early PE investors primarily focused on improving governance and optimizing the firm's efficiency by cutting down overspending, over-diversification, and overinvestment, which was necessary to generate the cash flows needed to pay down the debt. Hence, the PE model was mainly directed at preventing managerial perquisites and other value-destroying investments (Bruton et al., 2010; Klein et al., 2013; Meuleman, Amess, et al., 2009). Institutional isomorphism made PE firms increasingly converge on similar value-creation strategies (DiMaggio & Powell, 1983) through, for instance, adopting standardized due diligence processes and common operational improvement playbooks.

As the PE industry matured, the financial engineering model became institutionalized and “taken for granted” by all actors. The early successes led to a rapidly expanding PE industry (Manigart, 1994). Increased competition (Davis et al., 2014) drove up acquisition prices (Wright & Meuleman, 2006) and resulted in fewer arbitrage possibilities as relatively “cheap” target companies became increasingly scarcer (Castellaneta & Gottschalg, 2016). As the financial engineering model became largely commoditized, this put pressure on the “traditional” PE value creation model.

Increased levels of competition expanded the prevailing value creation logic in the PE industry. Driven by competitive pressures and a scarcity of traditional deal flow, PE firms had to consider a broader set of target companies (Kaplan & Strömberg, 2009). As the new (private) targets had lower agency risks than public companies, and acquisition prices increased due to enhanced competition, the PE's dominant reliance on financial engineering was no longer sufficient to generate attractive financial returns. Institutional theory proposes that organizations induce institutional change as they are exposed to altered opportunities (North, 1995). Competitive pressures hence forced PE investors to invest in new skills and knowledge to succeed (North, 1995). PE firms started to consider alternative value-creation strategies, including active ownership, value-adding through strategic entrepreneurship and the pursuit of growth-enhancing strategies on top of financial and governance engineering (Acharya et al., 2013; Kaplan & Strömberg, 2009). As a result, PE firms increasingly specialized in specific industries to enhance their value-creation abilities. Next to the traditional financial experts, they now hired partners with strong operational capabilities (e.g., ex-consultants or ex-industry managers) who are able to implement deep operational improvements combined with growth (Acharya et al., 2013; Kaplan & Strömberg, 2009). They also increasingly relied on knowledge from strategic, HR, or industry experts.

To summarize, we argue that increased PE competition prompted the adoption of active ownership and intensified the emphasis on strategic entrepreneurship as essential tools for winning deals and satisfying investor return expectations. An increasingly competitive environment forced a paradigm shift, altering the fundamental frame of reference and reshaping the industry's prevailing mental models of value-creation strategies. Therefore, we expect:

**Hypothesis 4.** *Post-buyout (i) efficiency and (ii) growth are more positively impacted in competitive PE markets.*

Whereas increased competition changed the initial taken-for-granted way of working, population-level learning promoted the spread of this newly adopted, active management model in a maturing PE industry. Population-level learning can be defined as the “systematic change in the nature and mix of routines, strategies or practices in a population of organizations, arising from experience” (Miner et al., 1999, p. 188). Collectively shared knowledge and practices evolve through population-level processes that ultimately affect organizational learning across the entire firm population (Miner & Haunschild, 1995). Organizations learn from observations and inferences about successful and unsuccessful practices of other comparable organizations (Levitt & March, 1988; Madsen & Desai, 2018), called vicarious learning. Hence, learning at the population level increases an individual organization's knowledge base by capitalizing on successful practices from early exploration by others and grafting in or importing best practices (Baum & Ingram, 1998; Huber, 1991).

In the PE context, investors learn vicariously through multiple sources. First, they gain new insights from prior successful and unsuccessful buyouts of their peers. For example, a significant number of high-profile public company buyouts involving junk bonds—such as the infamous RJR Nabisco buyout—ended up in bankruptcy in the 1980s. Negative media attention, portraying PE firms as “sharks,” along with concerns raised by policymakers, highlighted the shortcomings of the traditional buyout model. This discouraged excessive financial engineering as a value-creation strategy and promoted more sophisticated approaches (Madsen & Desai, 2018). Second, investment banks, law firms, and consultancy firms with a specific focus on PE captured changes in industry behavior and facilitated the spread of new practices. New approaches witnessed in a particular deal served to refine value creation in subsequent deals. Industry professionals further highlighted the shift from financial engineering toward more operational and fundamental value creation (e.g., Bartlett, 2015; Meerkatt et al., 2008), helping spread the cumulative knowledge generated in the industry. Third, foreign PE subsidiaries and satellite offices in less developed markets and the (international) mobility of PE professionals—particularly from developed to less developed markets—further promoted the dissemination of successful value-adding practices (De Prijcker et al., 2012). As a result, strategic entrepreneurship and growth-oriented strategies became institutionalized in the PE industry.

One specific mechanism driving population-level learning is the interconnectedness of organizations through networks (Ingram & Baum, 1997; Miner & Robinson, 1994). In the PE context, a specifically strong network promotion learning is a PE firm's syndication network (Meuleman & Wright, 2011; Sen & Puranam, 2022). Syndication occurs when two or more investors jointly acquire a company and work closely together to create value (Meuleman, Wright, et al., 2009). Syndicate networks are closely knit and characterized by repeated interactions among the same players (Meuleman & Wright, 2011), effectively promoting inter-organizational learning and spreading value-adding practices.

To summarize, vicarious learning informs PE investors on the most successful value-adding strategies. A key learning channel is the cumulative number of deals in the PE industry which drives industry-wide knowledge and best practices. Syndication additionally facilitates knowledge transfer between PE firms and promotes population-level learning. Hence:

**Hypothesis 5.** *Post buyout (i) efficiency and (ii) growth are positively impacted by the cumulative number of past PE deals.*

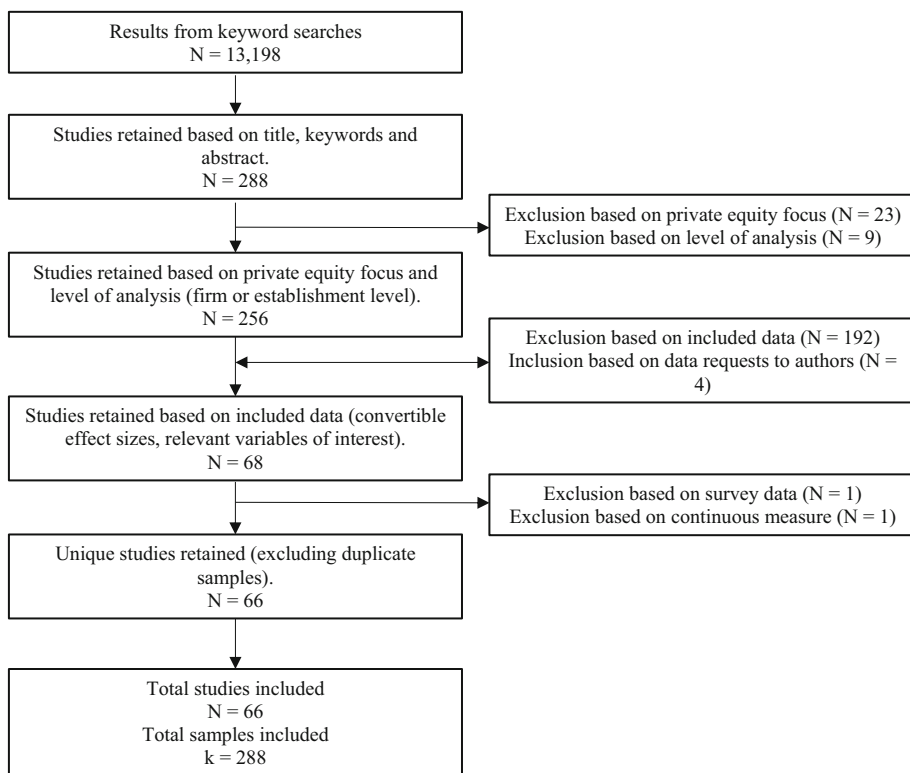


FIGURE 1 Graphical representation of the search and elimination strategy.

**Hypothesis 6.** *Post buyout (i) efficiency and (ii) growth are positively impacted when syndication is more prevalent.*

### 3 | META-ANALYTICAL METHOD OF ANALYSIS

#### 3.1 | Sample selection

We conducted a systematic search procedure to identify empirical (published and unpublished) papers that studied the relationship between PE buyouts and their portfolio company's post-buyout efficiency and growth (Cooper et al., 2019). Figure 1 provides an overview of our search process. First, we searched Web of Science, SSRN, and NBER using keywords including combinations of, on the one hand, "PE," LBO, MBO, MBI, or buyout\*, and on the other hand, "operating performance," performance, efficiency, productivity, TFP, "total factor productivity," or "real effect\*." Second, we manually searched relevant journals in the fields of entrepreneurship, business, management, strategy, and finance. Third, authors were contacted and asked for ongoing, unpublished work on the relationships of interest. Fourth, we searched the ProQuest Dissertations & Theses repository for doctoral dissertations using the aforementioned keywords. We limited our search to the first 1000 most pertinent results. Fifth, we performed an additional search in Google Scholar and reviewed the first 3000 most pertinent results.<sup>4</sup> Finally, all reference sections of the retrieved papers were consulted to identify further studies and conversely, we looked up studies citing highly cited papers already captured by our search. We finished our search for papers in March 2021.

The sample of retrieved studies was further refined to include only papers that addressed our research questions. The largest part of irrelevant papers was excluded based on a careful review of their title, keywords, and abstracts. Second, studies had to focus on PE buyouts, and not venture capital investments, non-PE buyouts, or ownership changes in general. Third, the level of analysis had to be the portfolio company or establishment, and not the PE investor or industry. Fourth, studies had to report statistics that could be converted into standardized mean differences (Cohen's *d*).<sup>5</sup> For papers that met all previous criteria but did not report convertible statistics, the authors were contacted and asked for additional data. Finally, we verified that none of the studies relied on the same samples. Following Wood (2008), studies with shared (co)authorship were checked to identify duplicate samples (we did not detect any overlap). The remaining studies were read, analyzed, and coded.<sup>6</sup>

All relevant study characteristics, sample specifications, and effect sizes were retrieved at the sample level, allowing to code each individual sample. This is important since some studies report effect sizes on more than one sample, report on more than one outcome variable, or report varying effect sizes over time. Therefore, the number of samples is larger than the number of studies in our meta-analysis. To ensure robustness, we detected outliers in effect sizes by relying on a triangulation of methodologies: we examined funnel plots (Higgins & Wells, 2011), the deviancy and sample-size adjusted deviancy from the average effect size (we marked samples with effect sizes more than three standard deviations from the average effect size), and normal quantile plots. If a sample is identified as an outlier by more than one method, we mark the sample as an outlier and exclude it from our analyses. Following this procedure, we dropped three outliers from our analyses. Our results are not impacted by the removal of these outliers (see also Table A9 in the online appendix).

## 3.2 | Measures

### 3.2.1 | Dependent variables

The dependent variables in our analyses are effect sizes of post-buyout efficiency and growth. To capture these constructs' multidimensionality (Combs et al., 2005) and following the use of different variables to capture these constructs in the underlying studies, we combine various measures of each construct. This approach follows other meta-analyses on firm performance (e.g., Crook et al., 2008; Lohwasser et al., 2022). More specifically, efficiency measures include revenue, profit, and total factor productivity, a.o., and growth measures include growth in revenue, cash flow, and profit. We refer to Table A1 in the online appendix for a detailed overview of all real effect measures and how we grouped them.

### 3.2.2 | Independent variables

To break down heterogeneity in the underlying samples, we include regulative, normative, and cognitive institutional moderators (Scott, 1995). The level of investor protection in a country is measured by the rule of law index (Botero & Ponce, 2011), which captures contract enforcement and hence proxies for investor protection. Equity market development is measured as the market capitalization of domestic firms as a % of GDP (World Bank, 2020). Individualism is taken from Hofstede et al. (2010).<sup>7</sup> We retrieve worldwide PE deal data from Refinitiv Eikon and, for any given country and year, measure PE competition via a Herfindahl–Hirschman index (HHI) using the number of deals by each active investor as their market share (higher HHI indicates lower competition) and population-level learning through (i) the cumulative number of past PE deals and (ii) the proportion of syndicated deals. All variables but individualism are longitudinal and allow us to compute average values over each sample's time frame. In addition to cross-country variation, our institutional learning and competition measures also significantly vary over time within countries.



### 3.2.3 | Control variables

We further account for several methodological and contextual sources of variance. A first methodological control is the study's publication status, to detect potential publication bias (Rothstein et al., 2005). Second, because we combine samples on different efficiency and growth dimensions, we control for their specific measurement. We differentiate between measures focusing on revenue (e.g., sales/total assets or sales growth), cash flow (e.g., EBITDA growth), profit (e.g., ROA or net income growth), or other metrics (e.g., total factor productivity) by including dummy variables for each measure. Third, as most studies report effect sizes for multiple post-buyout years and to limit the resulting sample dependency in our meta-regressions, we condition on how many years after the buyout an effect is measured. Unfortunately, some studies do not clarify the post-buyout period or consider the entire PE ownership period. Based on existing empirical evidence and our own analysis of 15,300 PE buyouts, we labeled those effects as being measured 5 years post-buyout, which corresponds with the median PE holding period.<sup>8</sup>

We also include two contextual control variables. First, we account for the sample's time period by controlling for the final year of a study's data sample. There might be systematic differences between effect sizes from older and more recent buyouts given the development of the PE industry, but also between older and more recent publications due to, for instance, easier data access, higher quality data, and improved statistical techniques. This continuous variable ranges from 1983 to 2018. Second, it is well known that PE investors do not randomly select target firms (Acharya et al., 2009; Bharath & Dittmar, 2010; Wilson et al., 2021). As a result, studies that compare buyouts to average peer companies without correcting for selection effects may report upwardly biased results (Acharya et al., 2009). We include three dummy variables taking the value of one if, respectively, the study (i) matches PE-backed companies with one or more similar non-PE-backed peers based on various pre-buyout observables; (ii) compares PE-backed companies to a set of non-backed companies (without matching); or (iii) employs an event study method by comparing the year before the buyout to subsequent post-buyout years.<sup>9</sup>

## 3.3 | Method of analysis

We use random effects (RE) meta-analysis, which provides more accurate estimates than the fixed effect (FE) model when the true effect size is assumed to vary among samples (Borenstein et al., 2011). We apply Hedges and Olkin's (1985) methodology and weigh effect sizes by the inverse of their observed variance. To analyze moderating effects, we run subgroup analyses and meta-regressions. First, subgroup analyses divide all samples into subgroups based on moderators (Hunter & Schmidt, 2004). We correct for sample interdependency by applying FE meta-analyses at the study level for dependent samples. Not doing so would lead to biased effect sizes because studies with more than one outcome (e.g., studies reporting effect sizes for  $t + 1$ ,  $t + 2$ , and  $t + 3$ ) would be attributed more weight. For each subgroup, a separate RE meta-analysis is run to calculate subgroup mean effect sizes and to establish further heterogeneity. Z-tests are performed to determine the statistical significance of subgroup differences. Second, we perform RE meta-regressions, which allow including the full range of continuous moderator variables—thereby avoiding artificial dichotomization—and testing several moderators simultaneously (Gonzalez-Mulé & Aguinis, 2018). Meta-regressions are inverse variance-weighted least squares regressions that regress the effect size (Cohen's  $d$ ) onto the included moderator and control variables, thereby attributing greater importance to more precise estimates of the true effect size. We use an iterative residual maximum likelihood estimator of residual heterogeneity  $\tau^2$  (Harville, 1977) and Knapp and Hartung (2003) modified standard errors. To avoid multicollinearity, and in line with other meta-analyses with country-related moderators (e.g., Chliova et al., 2015), we include each moderator in a separate model.<sup>10</sup>

## 4 | RESULTS

Our meta-analysis synthesizes 288 samples from 66 studies covering 47 years of data (see Table A2 in the online appendix for a complete list of all samples). The aggregate sample size is 386,671 companies for the combined overall analyses and 207,737 companies for the subgroup analyses. Where applicable, effect sizes are based on the same reference year (1 year before the buyout) to ensure comparability. Consistent with narrative literature reviews, we observe significant heterogeneity among samples. After eliminating outliers, 57% (43%) of samples report positive (negative) efficiency effects (varying from  $d = -1.22$  to  $d = 1.43$ ) and 66% (34%) of samples show positive (negative) growth effects (varying from  $d = -0.63$  to  $d = 0.76$ ).

### 4.1 | Overall effects and tests of sample heterogeneity

Table 1 presents the results of overall meta-analyses on post-buyout efficiency and growth. First, all analyses show statistically significant Cochran's Q statistics (the absolute amount of heterogeneity). Second,  $I^2$  (the relative amount of heterogeneity) is 83 and 87% for the analyses on efficiency and growth, respectively, which are considered relatively high (Higgins & Thompson, 2002). Third, we find nonzero estimates of between-study variation  $\tau^2$ , suggesting that moderating effects are indeed present.

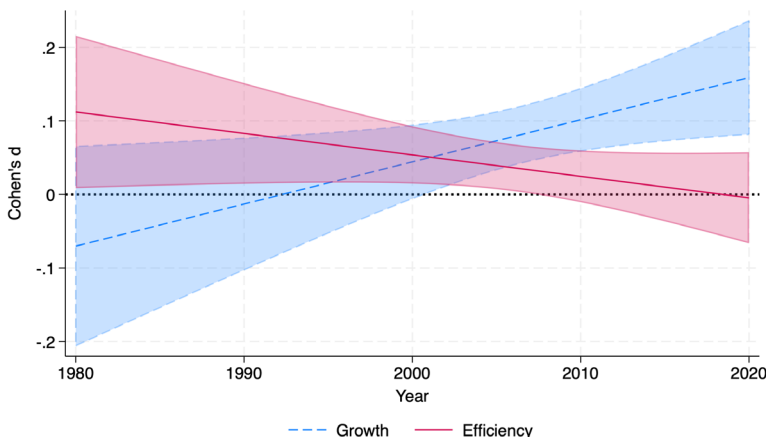
Taking all studies on efficiency together ( $d = 0.038$ ) suggests that PE does not impact post-buyout efficiency on average, but portfolio company post-buyout growth ( $d = 0.084$ ) is positive and highly significant.<sup>11</sup> Figure 2 plots predicted average effect sizes for our two outcome variables from 1980 to 2020. It clearly shows how the dominant

**TABLE 1** Mean effect sizes and heterogeneity statistics.

	<i>g</i>	CI 95%	<i>k</i>	<i>N</i>	<i>Q</i>	<i>I</i> <sup>2</sup>	<i>T</i> <sup>2</sup>
Efficiency	0.038	[-0.017; 0.093]	56	89,097	194.62***	83.39%	0.028
Growth	0.084**	[0.028; 0.141]	54	118,640	261.80***	86.56%	0.029

Note: This table presents the random effects meta-analyses corrected for within-study sample interdependency. *g* denotes Hedges' *g* (a linear transformation of Cohen's *d* that yields more unbiased point estimates), CI 95% presents the 95% confidence intervals, *k* is the number of study samples, *N* is the aggregate number of firms. Heterogeneity statistics include Cochran's *Q*, the percentage variation due to heterogeneity (*I*<sup>2</sup>), and the between-study variance (*T*<sup>2</sup>).

\*\*\* $p < 0.001$ . \*\* $p < 0.01$ .



**FIGURE 2** The difference in PE's real impact over time.



buyout model has changed over time. In the previous century, buyouts significantly and positively impacted portfolio companies' efficiency, but not their growth. While PEs' effect on efficiency gradually eroded over time, their effect on growth increased. These results are not driven by particular countries, as controlling for country-FEs does not change these results. Taken together, although there is no overall PE effect on efficiency, significant heterogeneity suggests that efficiency gains can be positive in some institutional contexts, and particularly so in the previous century.

## 4.2 | Moderator analyses

Results for the subgroup analyses (in the online appendix, see Table A3) show no statistically significant moderators except for the rule of law and equity market development for post-buyout efficiency and growth, respectively. These analyses, however, suffer from a limited number of underlying samples (as they are based on interdependency-adjusted samples) and from variable dichotomization, limiting their statistical power. They also do not account for potentially important spurious factors. These issues are addressed in meta-regressions hereafter.

Table 2 shows the meta-regression results for the moderating role of the institutional context. First, the rule of law significantly facilitates post-buyout growth, but surprisingly (and in contrast with the subgroup analysis), not efficiency. Our regression results hence support Hypothesis 1 (ii), but not 1(i). In line with Hypothesis 2, we find that well-developed equity markets significantly facilitate both efficiency gains and growth. Next, the cultural context is also a significant moderator as more individualistic countries show both higher post-buyout efficiency gains and growth (H3). Finally, competition (H4), the cumulative number of past deals (H5), and syndication (H6) all positively moderate the effect on efficiency and growth.

The control variables suggest that methodological factors also contribute to variability in effect sizes (see also Table A4 in the online appendix). As expected, event studies on efficiency ( $d = -0.09$ ) report significantly smaller effect sizes than studies that compare PE-backed companies to a random set of non-PE-backed companies ( $d = 0.10$ ). Studies that apply matching methodologies report smaller effect sizes than studies that compare PE-backed companies to a random set of non-PE-backed companies. This corroborates a nonrandom target selection in PE buyouts as controlling for a potential selection effect yields smaller effect sizes.

## 4.3 | Robustness checks

First, we checked for publication bias, which occurs when “the published literature is systematically unrepresentative of the population of completed studies” (Rothstein et al., 2005, p. 1). Published work might be biased toward finding significant effects and suppressing insignificant<sup>12</sup> or small effects. Next to meticulously searching and including unpublished papers, we tackle this bias in four ways. We first control for the paper's publication status in all meta-regressions, yielding only insignificant coefficients. Second, we reran all regressions including only the published studies, and did not find contrasting results (although the market capitalization coefficient for post-buyout growth turns insignificant). Third, while funnel plots show minor asymmetry, trim and fill analyses suggest that this asymmetry is caused by heterogeneity rather than publication bias (Duval & Tweedie, 2000). Fourth, cumulative meta-analyses did not show substantial drifts, which would have suggested publication bias (Borenstein et al., 2011). We conclude that there is no significant publication bias.

Second, while our moderators have a strong theoretical and scholarly basis, institutional research is rich in measures and often relies on various operationalizations for similar institutional dimensions. We, therefore, reran our analyses using different institutional variables. Our results on growth hold when we use GLOBE's in-group collectivism indicator as the opposite of individualism (House et al., 2004). Measuring the institutional stock of knowledge by the natural logarithm of the cumulative number of funds raised yields similar results. The natural logarithm of the



TABLE 2 Moderating effects on the relationship between PE and post-buyout real effects.

DV = Cohen's <i>d</i>	GROW	EFF	GROW	EFF	GROW	EFF	GROW	EFF	GROW	EFF	GROW	EFF
Published	-0.029 (0.041)	0.031 (0.039)	-0.065 (0.043)	-0.027 (0.043)	-0.015 (0.043)	0.030 (0.038)	-0.029 (0.044)	0.010 (0.039)	-0.034 (0.043)	0.011 (0.039)	-0.014 (0.043)	0.033 (0.037)
End Period	0.005 (0.003)	-0.001 (0.002)	0.004 (0.003)	-0.002 (0.002)	0.006* (0.003)	0.000 (0.002)	0.005 (0.003)	-0.001 (0.002)	0.003 (0.003)	-0.003 (0.002)	0.007* (0.003)	0.001 (0.002)
Investor protection	0.209*** (0.051)	0.032 (0.035)										
Public equity market strength			0.003*** (0.001)	0.002** (0.001)								
Individualism					0.004*** (0.001)	0.002* (0.001)						
PE competition							-0.861* (0.422)	-0.622** (0.226)				
Cumulative number of deals									0.036** (0.014)	0.023** (0.008)		
Syndication											1.267*** (0.367)	1.128*** (0.316)
Constant	-10.841* (5.472)	1.453 (4.532)	-7.386 (5.472)	3.945 (4.426)	-12.313* (5.739)	0.061 (4.495)	-9.402 (5.867)	2.691 (4.398)	-5.882 (5.629)	5.091 (4.541)	-15.038* (5.991)	-3.303 (4.580)
Measurement controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Method. controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time effect controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	116	204	116	204	116	204	116	204	116	204	116	204
$\chi^2$	19.80*	32.72***	39.03***	33.77***	34.66***	41.70***	32.43***	38.69***	23.91*	41.16***	27.27**	40.90***
R <sup>2</sup>	0.12	0.06	0.28	0.07	0.24	0.15	0.22	0.12	0.11	0.14	0.17	0.13

Note: This table presents the moderating effects of the institutional context on the relationship between PE and post-buyout real effects. GROW and EFF represent post-buyout growth and efficiency, respectively. End period is the last year of the study's data sample, investor protection is measured via the rule of law, public equity market strength is the market capitalization of domestic firms (in % of GDP), individualism is from Hofstede (2001), PE competition is measured via a Herfindahl-Hirschman index of PE competition at the deal level, the cumulative number of deals is log-transformed, and syndication is the proportion of syndicated PE deals. Knapp-Hartung modified standard errors in parentheses. \*\*\**p* < 0.001. \*\**p* < 0.01. \**p* < 0.05.



number of active funds and the number of investors per million inhabitants as proxies for competition also result in similar findings (although the number of active funds is only marginally significant for the analyses on efficiency).

Third, entrepreneurship (e.g., Lohwasser et al., 2022) and management (e.g., Duran et al., 2016) meta-analyses increasingly correct for the nested structure of effect sizes by applying multilevel models (Cheung, 2014).<sup>13</sup> While multilevel models are prone to misspecification and not yet common practice, we additionally test the robustness of our findings by accounting for the intercorrelation of error terms via four-way mixed effects models. More specifically, we model the nesting of multiple effect sizes (level 2) within studies (level 3), and within institutional contexts (level 4). Tables A5 and A6, in the appendix, show these multilevel results. We find similar results for the overall effect sizes and for the moderating effects on post-buyout growth. The coefficients for efficiency, however, become statistically insignificant.

Fourth, multiple studies may rely on the same datasets. Hence, the portfolio companies in those datasets are oversampled in our meta-analysis. To account for this, we first reran our meta-regressions with data source FEs, which did not alter our results. Second, we removed duplicate studies with overlapping sample periods and geographies, which might have relied on similar buyouts.<sup>14</sup> While this drastically reduces the number of studies included in our meta-analyses, we find qualitatively similar results for the overall meta-analysis and meta-regression results (Tables A7 and A8 in the online appendix, respectively).

Finally, an alternative explanation for our findings could be that pre-buyout ownership substantially differs between institutional environments (Davis et al., 2021). For instance, public-to-private buyouts might encapsulate different value-adding opportunities compared to private-to-private buyouts. To account for these confounding effects, and if reported, we therefore extracted the average proportion of private-to-private buyouts from each study. Subgroup analyses do not indicate different effect sizes for low versus high proportions of private-to-private buyouts. Results for meta-regressions (on a reduced set of controls to accommodate the loss of observations) also remain qualitatively similar and are available upon request.

## 5 | DISCUSSION, IMPLICATIONS, AND CONCLUSIONS

### 5.1 | Discussion of the results

Our study leverages an institutional perspective to understand how the real effects of PE buyouts are systematically shaped by the institutional context in which they take place. Whereas past research has identified various investor- and deal-related factors that affect PE's real impact, variations in the real effects of buyouts across countries and time have largely been overlooked (e.g., Cumming et al., 2023; McGrath & Nerkar, 2023; Morris & Phalippou, 2020). As institutions impact the effectiveness of corporate governance (Aguilera & Jackson, 2003; La Porta et al., 2000), including the effectiveness of different ownership constellations (Bruton et al., 2010; Cumming, Fleming, et al., 2010), we used an institutional lens (North, 1990; Scott, 1995, 2003) to derive hypotheses on the regulatory, normative, and cognitive forces that drive variations in PEs' real effects across countries and time.

Overall, the results of our meta-analysis indicate that PE firms' value-creation strategies have changed over time and are constrained or enabled by different institutional settings. First, our results support an increasingly important strategic entrepreneurship view of buyouts as we find significant growth enhancements in PE-backed buyouts, especially in the 21st century. In the first and second waves of buyouts in the 1980s and 1990s, efficiency enhancement was more pronounced, but this effect has decreased over time. The current prioritizing of growth over efficiency enhancement is consistent with recent survey evidence from Gompers et al. (2016). Altogether, our results highlight the complementary nature of the agency perspective, focused on financial and governance engineering, and the strategic entrepreneurship perspective, focused on operational engineering, including the pursuit of growth opportunities.

Second, considering the regulatory pillar, we show that PE investors more positively impact portfolio company growth, but not their efficiency, in countries with better investor protection. Better investor protection enhances

governance effectiveness, assures the investment's value at exit, and minimizes transaction costs such as information asymmetry, ultimately making growth-enhancing investments more valuable (Groh et al., 2010). We also find that better-developed equity markets are beneficial for both post-buyout growth and efficiency. Hence, capital markets are important not only for overall PE activity (Groh et al., 2010) but also for the impact PEs generate in their portfolio companies. Through increased liquidity and enhanced pricing mechanisms, well-developed equity markets facilitate attractive exits, incentivizing sustained value creation during the holding period (Faure-Grimaud & Gromb, 2004).

Third, while largely neglected in empirical work, we highlight that normative institutions also matter for PE value creation. Our analyses indicate that PE has a more positive impact on portfolio company growth and efficiency in more individualistic cultures, typically associated with organizational risk-taking and entrepreneurship (Li et al., 2013; Mihet, 2013). These results contribute to an increasing stream of research that highlights the importance of culture to understand different aspects of M&As (Li & Halebian, 2022; Maas et al., 2019). However, the impact of culture on the real effects of PE has been neglected, despite their increasingly active role in the M&A market.

Fourth, our results also provide unique insights into how the cognitive pillar underlying buyout investing has evolved over time. A key tenet of institutional theory is that organizations induce institutional change driven by competition (North, 1995) and diffuse newly adopted practices through population-level learning (Haunschild & Chandler, 2008). We argued that the practice of active ownership, including value-adding through operational engineering, strategic renewal, and the pursuit of growth-enhancing strategies, emerged as an alternative PE model, on top of financial engineering (Acharya et al., 2013; Kaplan & Strömberg, 2009). Our results indicate that competition and an accumulating stock of institutional knowledge, driven by the cumulative number of buyout transactions in a specific country and diffused through syndication, spur both post-buyout growth and efficiency. Our results support a cognitive logic of action that has shifted over time. While most studies consider normative institutions to be static in time, our study contributes to institutional theory by showing how taken-for-granted ways of working can change through competition and population-level learning.

Our results on the shift of PE practices over time are suggestive of a global trend in the diffusion of cognitive structures. For instance, buy-and-build strategies originated in the United Kingdom as a strategy to spur growth. This strategy has been adopted by US and then European investors. PEs' increased cross-border investments, their practice of setting up subsidiaries abroad, and the relocation of internationally trained PE professionals have also helped to spread practices around the world. Finally, global shocks such as the Great Financial Crisis have had immediate and global impacts. We leave it to future research to further address the role of global trends in driving cognitive structures for PE value creation.

Our study can be considered as a case study of how institutional forces shape the development of a specific industry, the PE industry, across the globe and over time. We suggest that its implications extend beyond this industry. Our insight that institutions shape the "taken-for-granted" way of working in an industry, but that these change over time due to competitive pressures and population-level learning, can be used to understand diffusion processes in other industries. For example, cognitive institutions made incumbent car makers take it for granted that combustion engines could not be economically replaced in cars. Nevertheless, changing norms and regulations gave way to new electric car manufacturers in the United States and China. Increasing competitive pressures from newcomers, together with collective learning from their innovation, paved the way for incumbents to develop their own electric cars.<sup>15</sup> Changing institutional norms have changed the way cars are currently made. This example highlights how strategy, innovation, and organizational behavior scholars might enrich their understanding through institutional theory.

## 5.2 | Practical implications

Our study has practical implications for PE investors, entrepreneurs, and policymakers. First, we show that post-buyout efficiency and growth effects differ across institutional environments. PE investors and limited partners



investing in PE funds should, therefore, align their investment strategies with the institutional environment. Growth-minded investors, for instance, are better off in investor-oriented and individualistic settings. This insight is important as PE investors increasingly invest across borders (Meuleman & Wright, 2011). Further, competition and learning drive PE value-creation models. The traditional financial and governance engineering model might not be sufficient under stronger competition. In competitive markets, more sophisticated growth-oriented strategies are needed, including, for example, industry specialization and buy-and-build strategies. Second, entrepreneurs benefit from our findings which identify contexts in which PE is more likely to spur efficiency and growth. Third, policymakers may also take an interest in our study. We show that PEs' real effects do not match the negative view that is often depicted in the popular press but are associated with enhanced growth and efficiency. Moreover, PE—especially in recent years—has reduced its traditional focus on efficiency in favor of growth, helping economies prosper. Further, the regulatory environment is an important enabler of post-buyout growth.

### 5.3 | Limitations

Our analysis also has limitations. First, findings from meta-analyses can only provide causal evidence when all the underlying studies have done so. This is not the case for this study, so its findings should be interpreted accordingly. Furthermore, while our analyses indicate the general direction of PEs' real effects on their portfolio companies, it does not show *how* these real effects are obtained. Neither can we provide direct evidence of the underlying mechanisms at play.

Second, diversity in outcomes in underlying studies has complicated the categorization of measures into a limited number of categories and might have resulted in a loss of information through their aggregation. We encourage future researchers to devote attention to what these measures theoretically represent.

Third, while we control for various variables that potentially impact efficiency or growth, we are limited to those reported in the underlying studies. Many other factors, for which we have no information, have been shown to influence the relationships at study. For example, we lack information on the PE types in underlying work and could hence not account for heterogeneous fund typologies (Cumming et al., 2009).

Fourth, we could only capture effect sizes from studies that reported detailed and useful statistics. While we contacted authors for which this was not the case, there may be a potential reporting bias. We are, however, unaware of any method to detect or control for this bias.

Fifth, methodologically, selection effects might distort our findings. PE investors do not select targets randomly when investing, raising the question of to what extent post-buyout real effects originate from value-adding rather than from mere target selection. Indeed, our results indicate that studies that apply event study methodologies or matching methodologies report significantly smaller efficiency gains than studies that compare PE-backed to non-PE-backed firms without matching. An increasing number of studies address this by using more rigorous methods to disentangle selection from treatment effects. We encourage other researchers to follow their lead and use comprehensive matching techniques to decrease potential endogeneity. For example, matching on (multiple) nonparametric statistics and expanding the set of matching variables beyond traditional financial metrics (e.g., incorporating variables derived from textual analysis) can further contribute to a more accurate non-PE-backed counterfactual. Also, while our results should not be causally interpreted, some authors have called for a better discussion on causal identification in meta-analyses (Shaver, 2020). While causal identification has improved over time in the underlying studies, we believe heterogeneous identification strategies should not drive our results as we additionally controlled for empirical methodology and timing effects.

Finally, we recognize that the three institutional pillars might be correlated, making it hard to disentangle the separate forces of each of the three pillars. For instance, normative or cultural institutions have inspired the formation of regulatory frameworks, which in turn might have influenced the adoption and speed of competition in the PE industry. Nevertheless, it is worthwhile to study them separately because conditional on country and time effects,

the correlations between institutional variables can change. Disentangling these provides an interesting avenue for future research.

## 5.4 | Avenues for future research

Meta-analyses are particularly important for advancing the current theoretical debate by opening new lines of inquiry based on findings from moderator analyses. Our study does so too and uncovers interesting suggestions for future research. First, future work should try to disentangle how efficiency and growth effects are achieved in portfolio companies, controlling for the institutional environment. Additionally, as growth is an essential driver of value creation in PE buyouts, we call for more studies on which growth mechanisms are particularly useful given the institutional context of the buyout, for example, innovation, internationalization, or buy-and-build strategies (Wright et al., 2019). Future research should build on recent studies that have identified the specific mechanisms through which PE investors create value. Biesinger et al. (2023) provide fine-grained analyses using confidential investment memos and value-creation plans to move beyond treating PE as a black box. Recent industry-specific studies have also been particularly insightful in uncovering specific value-creation mechanisms used by PEs. Spaenjers and Steiner (2024) show how specialized PEs leverage industry experience to generate superior performance in the hotel sector, while Fracassi et al. (2022) use product-level data to show that PE drives sales growth through new product launches and geographic expansion. Moving forward, we advocate for rigorous causal identification using instrumental variables, difference-in-differences (DiD), or (synthetic) matching approaches. Heterogeneous DiD analysis appears especially promising, as it can account for varying time horizons in which different post-buyout effects materialize.

Second, recent research has investigated whether PE investors transfer value from stakeholders like employees, customers, or suppliers and as such would create financial value for their shareholders at the expense of other stakeholders (Manigart et al., 2022). As the scope of our meta-analysis is limited by studies that other researchers have performed, we were not able to study the real effects of PE buyouts on other buyout stakeholders. Future studies could more systematically review the impact of PE on nonfinancial stakeholders.

Third, while we identify the moderating role of the institutional environment, it is outside the scope of a meta-analysis to show *how* it moderates PE's real effects. Future research could examine more fine-grained institutional features conducive to PE investing (e.g., specific elements of the regulatory environment) to further disentangle the effect of specific institutions. For instance, it would be interesting to study how better capital market development specifically leads to higher growth and efficiency. Additionally, while we examined individual institutions, configurational approaches have been proven fruitful in the context of entrepreneurship research (Fainshmidt et al., 2022; Standaert et al., 2022). This would allow shedding more light on which institutional drivers have the highest impact on post-buyout real effects.

Fourth, we have documented a shift in the PE model from an early focus on efficiency toward a more recent focus on growth. We argue that competition dynamics and institutional-level learning drive this shift. Understanding microlevel drivers of how PE investors learn and incorporate novel practices will add valuable insights. Enhanced competition further leads to more PE buyouts exiting through a secondary sale to another PE investor (Arcot et al., 2015). In this context, value creation is less evident as easy sources of value creation in the target company are likely to have been exploited by the selling PE investor. Understanding how the buyers further build on the practices of the sellers is a fruitful avenue for research.

Fifth, while this study covers different institutional frameworks, our sample is nevertheless skewed as most studies rely on US or UK data. To further increase our understanding of the institutional drivers, we need more evidence from other institutional contexts, including stakeholder-oriented economies. Additionally, multicountry studies are required as meta-analytical results are only indicative and do not provide causal or direct evidence. This would allow studying interactions between formal and informal institutions and investor- and deal-level characteristics and how they together impact investment outcomes (Hammer et al., 2021).



Sixth, we showed that competition and country-level learning change PEs' taken-for-granted way of working. To advance institutional theory, it would be interesting to understand whether this is idiosyncratic to an emerging industry like the PE industry, or whether institutional norms also change over time in other, more mature industries. Routines and schemata might be more strongly embedded in mature industries, making it harder to change the established ways of working. Specifically, we call for studies validating and extending our theory in other settings. Scholars studying how innovative practices diffuse geographically and over time should consider how changing institutional pressures shape organization-level behavior. Furthermore, it would be interesting to study how changed institutional norms in one country might induce change in another country through spillovers like cooperation between actors from different countries or through multi-national actors.

## 5.5 | Conclusion

This study aimed to understand which institutions enable or constrain value creation in PE-backed buyouts. The PE model has shifted over time from focusing on efficiency gains to an active ownership approach focusing on growth. Investor-oriented regulatory frameworks facilitate post-buyout growth but not efficiency, while equity market development and individualistic cultures facilitate both post-buyout growth and efficiency. Using insights from competition and population-level learning, our study furthermore indicates how cognitive frames driving PE value creation have facilitated efficiency and growth over time. As such, our study contributes to the debate on the heterogeneous impact of PE on their portfolio companies.

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## ENDNOTES

- <sup>1</sup> In this article, we use the restrictive definition of private equity and focus exclusively on buyouts of mature companies. We herewith exclude venture capital, which entails investing in young, growth-oriented ventures.
- <sup>2</sup> While we exclusively focus on post-buyout efficiency and growth, there are other "real" effects of PE, for example, related to innovation, internationalization, or employees. However, studies on such real effects are either too scarce to review meta-analytically or focus on the impact on stakeholders (such as employees) and not on portfolio company-level outcomes. We refer to McGrath and Nerkar (2023) for a recent narrative review of these outcomes.
- <sup>3</sup> Uncertainty avoidance, another widely studied cultural dimension in finance, is less applicable to a buyout setting as buyouts occur in mature companies. It is more frequently related to early stage equity investments that exhibit greater uncertainty, such as venture capital investments (e.g., Li & Zahra, 2012; Rosenbusch et al., 2013).
- <sup>4</sup> Our choice to also scan the ProQuest and Google Scholar databases, in contrast to many other meta-analyses, resulted in a huge number of irrelevant hits. After analyzing the title, abstract, and keywords of the first 1000 (3000) ProQuest (Google Scholar) hits, we retained only 12 (respectively, 31) studies as relevant content-wise.
- <sup>5</sup> We do not consider regression coefficients, as this would require all regressions to include the exact same set of covariates (Hunter & Schmidt, 2004). Meta-analyses that included regression coefficients when bivariate statistics were missing have been shown to be associated with substantial biases (Roth et al., 2018).

- <sup>6</sup> See the appendix for an elaborate clarification of the sample selection and elimination process.
- <sup>7</sup> <https://geerthofstede.com/research-and-vsm/dimension-data-matrix/>.
- <sup>8</sup> Most papers find an average PE holding period of around 5 years (e.g., Degeorge et al., 2016; Harris et al., 2014; Kaplan & Strömberg, 2009; Lopez-de-Silanes et al., 2011). Others find shorter-term holding periods of around 3 years (e.g., Bonini, 2015; Tykvová, 2006; Valkama et al., 2013). We analyzed 15,300 PE buyouts ourselves and found a median holding period of 5.1 years. Our results are robust when considering 3 years.
- <sup>9</sup> The regression technique used in the original studies does not impact our meta-analytical regressions which are based on the bivariate statistics, as is best practice in meta-analyses (Borenstein et al., 2011).
- <sup>10</sup> Table A10 in the online appendix presents correlation matrices for the efficiency and growth subsamples.
- <sup>11</sup> Our overall effect sizes on efficiency ( $d = 0.038$ ) and growth ( $d = 0.084$ ) are comparable to other recent meta-analyses that have linked strategic renewal ( $d = 0.074$ ; Bierwerth et al., 2015) and family ownership ( $d = 0.060$ ; Lohwasser et al., 2022) to performance, but smaller than effect sizes of the internationalization-performance relationship ( $d = 0.120$ ; Marano et al., 2016;  $d = 0.221$ ; Schwens et al., 2018) and the effect of venture capital on portfolio company growth ( $d = 0.161$ ; Rosenbusch et al., 2013).
- <sup>12</sup> Although published papers may report relatively more significant effect sizes, this should not impair the validity of a meta-analysis since it aggregates all effect sizes, whether significant or not.
- <sup>13</sup> That is, multiple effect sizes can be nested within studies and can, therefore, not be considered independently.
- <sup>14</sup> We retained as many studies as possible by dropping studies spanning a larger sample period. This allowed us to include more studies, each with shorter sample periods.
- <sup>15</sup> For instance, see CNN's coverage by Riley (2019) on the disruption of the car manufacturing industry by Tesla, or Pillai et al. (2020) on experimentation in the early car manufacturing industry.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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