The Value of Specialization in Private Equity: Evidence from the Hotel Industry*

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November 2021

Abstract

We show that PE sector specialists outperform generalists at every stage of the investment life cycle. Using granular data for thousands of U.S. hotels over the last two decades, we document that specialists exert a greater positive influence on more margins of hotel operations, earn higher net cash flows over the holding period, and achieve larger capital gains upon exit than do their generalist peers and other, non-PE investors backing *ex ante* equivalent assets. By contrast, PE generalists' strongest comparative advantage appears to be better access to attractively priced acquisition financing. Our results provide novel evidence on the heterogeneity of PE investment strategies and associated performance outcomes.

JEL Classification: G11, G24, G32, R33.
Keywords: private equity, investment performance, firm ownership, real estate.

*We thank the Business Dynamics Research Consortium at the University of Wisconsin, CBRE Hotels, Dodge Data & Analytics, and Real Capital Analytics (RCA) for providing data. We are grateful to Jan deRoos, François Derrien, Denis Gromb, Johan Hombert, Chao Ma, Robert Mandelbaum (CBRE Hotels), Ludovic Phalippou, Michelle Russo (Hotel AVE), Jacob Sagi, Edmund Schuster, David Thesmar, Ayako Yasuda, seminar participants at Penn State, UNC Chapel Hill, University of Wisconsin-Madison, Yeshiva University, and participants in the 2021 Institute for Private Capital Spring Research Symposium and the 2021 European Meeting of the Urban Economics Association for their insightful comments and suggestions. This research is supported by a grant of the French National Research Agency (ANR), "Investissements d'Avenir" (LabEx Ecodec/ANR-11-LABX-0047). All errors are ours.

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1 Introduction

Proponents of the private equity (PE) investment model argue that PE ownership can improve the revenue potential, operating efficiency, profitability, and ultimately valuations of target firms (Jensen, 1986, 1989). Several studies present evidence consistent with such superior management practices and value creation by PE investors.[1] However, critical voices question the degree to which PE ownership improves target firm productivity, point to increased risk-taking and excessive leverage in PE-backed firms, and show that PE funds tend to overpay for their target firms.[2] Those conflicting conclusions about the value of the PE investment model could be due to heterogeneity in PE investment strategies and the associated performance outcomes. Prior studies have examined PE characteristics such as fund size (Lopez-de Silanes et al., 2015) and industry experience (Bernstein and Sheen, 2016) as potential drivers of such heterogeneity. However, the role of PE sector specialization—another key defining feature of PE funds—has not been explored in detail. The goal of this study is to make progress toward filling this gap in the literature.

Existing research does not provide a clear prediction about the effect of industry specialization on PE performance. Several papers have shown a positive impact of such specialization on capital allocation choices in mutual funds (Kacperczyk et al., 2005; Schumacher, 2018) and venture capital (Gompers et al., 2009).[3] These findings are consistent with the model of Van Nieuwerburgh and Veldkamp (2009), in which investors strategically choose to learn more about any assets for which they have an initial informational advantage. However, PE investors do not simply select assets and allocate capital; they typically also get involved in the strategic and operational management of their target firms. Critically, the corporate finance perspective on specialization is ambiguous. While CEOs with more industry expertise are better negotiators (Custódio and Metzger, 2013), they may innovate less (Custódio et al., 2019). Moreover, the demand for general managerial skills increasingly exceeds that for more specialized knowledge (Custódio et al., 2013; Frydman, 2019).

[1] See, e.g., Guo et al. (2011); Acharya et al. (2013); Davis et al. (2014); Harris et al. (2014); Bloom et al. (2015); Kaplan and Sensoy (2015); Bernstein and Sheen (2016); Biesinger et al. (2020); Fracassi et al. (2020). Other papers focus on the positive effects on target firms from improved access to financing (see, e.g., Boucly et al., 2011; Ivashina and Kovner, 2011).

[2] See, e.g., Leslie and Oyer (2008), Gupta et al. (2021), Kirti and Sarin (2020), Haque (2021), and Axelson et al. (2013). Additional criticisms of the PE model are, first, that PE investors pursue financial gains at the expense of non-financial stakeholders (Eaton et al., 2019; Gupta et al., 2021; Morris and Phalippou, 2020), and, second, that the carry and other fees earned by fund managers are excessively high and lead to low risk-adjusted *net* returns for end investors (Phalippou, 2020).

[3] In a recent paper, Zambrana and Zapatero (2021) study specialization in terms of mutual funds' investment objectives, and find that a specialist (generalist) mandate is better for a security-picking (market timing) investment strategy.

We study the value of PE sector specialization in the hotel industry. The approach to focus on one industry is consistent with other recent research studying specific empirical settings in which PE investment behavior and performance outcomes can be observed in detail, e.g., restaurants (Bernstein and Sheen, 2016), the oil and gas industry (Bellon, 2020), nursing homes (Gandhi et al., 2020a,b; Gupta et al., 2021), hospitals (Gao et al., 2021), or local journalism (Ewens et al., 2021). Our chosen setting offers several distinct advantages for the empirical analyses we plan to conduct. First, acquiring a hotel involves buying the real property that houses the hotel operations. Such real estate transactions are typically a matter of public record, and we can thus observe the valuations at which PE funds enter and exit their investments. Second, our transaction records allow us to observe the identities of hotel buyers and sellers, enabling us to manually classify the PE investors in our sample into generalist PE firms investing in many asset categories and PE specialists that focus exclusively on the hospitality sector. Further, hotel operators commonly participate in asset-level performance benchmarking programs. Because of the level of detail covered in those surveys, we can study the changes effected by PE investors in their target firms over all individual components of the P&L, while also verifying whether the *sum* of these changes leads to overall outperformance over their competitors. Lastly, a number of supplementary data sources are available for the hotel industry, e.g., data on capital expenditures and customer satisfaction. Those data sets allow us to test additional hypotheses related to the (long-term) impact of PE ownership on the physical quality and operating performance of their investment assets.

We obtain a near-universal data set of hotel deals completed in the U.S. over the past two decades from Real Capital Analytics (RCA), the leading provider of commercial real estate (CRE) transactions information. In the RCA records, we observe the dates when—and the capital values at which—investors buy and sell individual hotel assets, hotel portfolios, and legal entities owning hotel real estate assets. Importantly, RCA identifies investors by name and classifies them into granular investor types, allowing us to distinguish between PE and non-PE hotel buyers. We further manually classify all PE funds in our sample as either specialists or generalists, depending on information those funds provide about their investment sector focus.

We use hotel operating data from the consulting company CBRE Hotels, which runs the most long-standing and comprehensive annual hotel operating performance survey in the U.S. CBRE collects detailed accounting data on hotel operating performance following a harmonized reporting

system (the Uniform System of Accounts for the Lodging Industry, USALI). Under USALI norms, hotels submit itemized data on all revenues and expenses associated with their business operations, allowing us to observe in detail the growth and efficiency of those operations, as well as the net cash flows to hotel owners. We merge the RCA and CBRE records to create a novel data set that integrates asset-level transactions and ownership information with annual hotel operating performance data.

The central identification challenge that we face is the endogeneity of PE investment choices. For instance, PE investors may select underperforming hotels to engineer an operational turn-around and stoke firm growth post-acquisition (Cohn et al., 2020). Following the accepted practice in recent PE research (see, e.g., Bharath et al., 2014; Davis et al., 2014; Biesinger et al., 2020), we address this endogeneity issue by adopting a matched difference-in-differences approach. Specifically, we pair subject hotels (those eventually acquired by PE investors) with control hotels (those that do not receive PE funding) based on *ex ante* observable characteristics, namely hotel location, type, chain scale, and size. We then examine key operating performance outcomes across subject and control hotels in the five years leading up to the PE investments. Our results indicate that there are no significant pre-trends and hardly any differences in the operating performance of the hotels in the two comparison groups prior to the time when PE investors acquire their subject hotels. The findings of those preliminary tests should mitigate concerns about the impact of endogenous matching between PE investors and hotels on our results.

We employ difference-in-differences estimations to assess the operating performance of PE-owned subject hotels against that of characteristics-matched control hotels backed by other investor types. Our estimates indicate that key drivers of hotel revenue growth—notably, average room rates and occupancy—remain indistinguishable from those of their characteristics-matched peers owned by other investor types for up to five years following the PE acquisitions of the subject hotels. However, we show that PE-owned hotels experience a significant and lasting improvement in departmental profit margins.[4] We demonstrate that this improvement is due to a reduction in labor costs, notably in the rooms department, which is at least partly driven by staff cuts. These effects are significantly larger for PE specialists. Moreover, PE generalists earn bottom-line profits in line with those earned by non-PE investors. In contrast, ownership by PE specialists is associated

[4]Departmental profits are defined as revenues from rooms, food and beverage, and other operating departments, minus the variable costs incurred in running those departments. See Appendix Table A.1 for details.

with significantly higher gross operating profits and net income margins. The latter effect is largely driven by a substantial reduction in fixed charges under PE specialist ownership.

As a complementary measure of hotel operating performance, we collect data on customer experience ratings from Tripadvisor. We find no significant effect on the quality of guest experiences associated with ownership by PE generalists. However, for PE specialists, we find a *negative* effect on guest satisfaction with service quality. Our findings imply that the cost-cutting measures implemented by PE specialists in their hotels may compromise the quality of their guests' experiences.

We then analyze two asset management strategies PE investors may employ to improve the long-term values of their hotels. First, PE owners may carry out follow-up investments to renovate, expand, or otherwise improve the physical structure of their hotel properties. To examine this conjecture, we link capital expenditure data sourced from construction permits by Dodge Data & Analytics to our data set of subject and control hotels. We find that hotels owned by PE generalists are no more likely to undergo any physical improvements than are those owned by non-PE investors. By contrast, specialist PE ownership leads to an increase in alterations (e.g., turning suites into regular guest rooms, or vice versa). Second, PE investors may replace the incumbent hotel management team. We estimate that PE-owned hotels are indeed more than twice as likely as those backed by other investor types to experience a change in management teams after new owners take over the businesses.

Next, we document the capital gains earned by PE and non-PE owners on their hotel real estate investments over the 2001–2019 period, using the RCA transactions data. On average, PE investors' total capital gains exceed those of their non-PE counterparts by more than 11%, despite similar average holding periods. However, the capital gains of PE generalists in the hotel industry become statistically indistinguishable from those realized by non-PE investors once we control for investment timing and location choices. By contrast, PE specialists continue to earn economically and statistically significantly higher capital gains than their generalist counterparts, even after controlling for investment timing and location choices. These results are consistent with the improvements in hotel operating performance we document for PE specialist hotel owners.

When comparing cash flows and capital gains of PE investors to those of their non-PE peers, we focused on unlevered returns. In the final part of our analysis, we test whether PE investors enjoy more favorable financing conditions than do other investor types. We find that, holding

constant broad credit market conditions, generalist—but not specialist—PE investors borrow at lower interest rates than do other, non-PE hotel buyers.

Our paper makes several contributions. First, it advances our understanding of the drivers of variation in PE investment outcomes. Some existing work has focused on external factors, such as the economic conditions at the time of the PE investment (Davis et al., 2019) and the competitive environment faced by PE investors (Ljungqvist and Richardson, 2003). Several characteristics of PE funds have also attracted attention, including their scale (Lopez-de Silanes et al., 2015), industry experience (Bernstein and Sheen, 2016), and access to public capital markets (Gao et al., 2021). Notably absent from this literature is sector specialization—a key defining attribute of the funds in the PE industry (Gompers et al., 2009). We show that specialization is a key driver of the economic effects of PE ownership on target firms and the resulting investment performance outcomes.

Next, several studies have linked heterogeneity in PE and VC investment strategies to investor and target firm characteristics (Kaplan and Stromberg, 2009; Gompers et al., 2016, 2020; Biesinger et al., 2020). We contribute to this literature by showing that sector focus is an important determinant of PE funds' investment strategies. Specifically, our results are consistent with PE specialists pursuing more hands-on asset management approaches, and PE generalists focusing more on asset selection, market timing, and especially financial engineering.

Finally, an emerging literature focuses on the effects of PE ownership on target firms' non-financial stakeholders, including consumers and patients (Eaton et al., 2019; Gandhi et al., 2020a,b; Gupta et al., 2021; Fracassi et al., 2020; Gao et al., 2021), local residents (Bellon, 2020; Ewens et al., 2021) and employees (Cohn et al., 2021; Fang et al., 2021; Lambert et al., 2021). Results from these studies are mixed, with some pointing to poor, others to improved outcomes for those various stakeholders. We show that PE specialists cut operating costs in their acquired hotels, at the expense of service quality—but not their bottom line. Our findings thus suggest that PE investors sometimes make complex trade-offs between their immediate financial objectives and stakeholder outcomes.

We proceed as follows. We present details on our main data sources and sample selection in Section 2. We discuss our empirical results on hotel operating performance under PE ownership in Section 3 and those on long-term asset management strategies in Section 4. Sections 5 and 6 contain the analyses of PE capital gains and acquisition financing terms, respectively. Section 7 concludes.

2 Main Data Sources and Sample Selection

2.1 Hotel Transactions Data

We obtain deal-level data on hotel transactions from Real Capital Analytics (RCA), the leading provider of commercial real estate transactions information. We start with all hotel transactions in the RCA database over the 2001–2019 period. The data include single and portfolio transactions as well as entity-level deals (e.g., acquisitions of hotel owner-operator companies).[5] We exclude transactions of minority interests, partial leaseholds, and other non-standard conveyance types; taken together, the excluded records represent less than 10% of the transactions data.

In total, our data set includes 26,878 individual hotel transactions for 17,097 different properties. Each portfolio transaction represents multiple observations. Furthermore, individual hotels may occur in the data set more than once if they are traded multiple times during the sample period. To account for joint venture deals, each transaction in the RCA database is linked to up to four different buyers and sellers. RCA has its own classification of buyer and seller types; private equity (PE) investors are labeled "equity funds."

The RCA hotel transactions data include 219 unique PE investors. For each of those investors, we hand-collect data on their investment sector focus to classify them as "specialists" versus "generalists." Specifically, we search the PE firms' websites for information on the types of assets they invest in. We consider specialist investors to be those PE firms that only invest in the hospitality sector. We consider generalist investors to be those that do not only invest in hotels, but also in other types of real estate assets (e.g., office, multifamily, or retail), and/or other asset classes beyond real estate (e.g., leveraged buy-outs of operating companies in industry sectors beyond hospitality). Our classification indicates that 25 out of the 219 PE funds in the RCA data set (11%) are specialist investors and that the remainder are generalist investors. For instance, hospitality specialist PE investors in our sample include the Chartres Lodging Group, HEI Hospitality, and Varro Hospitality. By contrast, PE generalists encompass familiar investor names, such as, Apollo Global Real Estate, Blackstone, and the Carlyle Group.

[5] We focus on the cash flows and capital gains associated with the ownership and operation of hotel real estate assets. Investments in hotel owner-operator companies may generate additional cash flows, e.g., franchising fees.

Table 1 presents cross-sectional characteristics of the PE investors included in our sample, broken down by PE sector specialization. Notably, PE specialists and generalists on average acquired their first hotels at approximately the same time during our study period (in 2007 and 2009, respectively). The total numbers of properties acquired by the average PE specialists and generalists in our sample are also comparable across the two investor types (21 and 24, respectively)—and so are their total acquisition volumes ($0.71 billion and $0.89 billion, respectively). By contrast, PE generalists on average focus their investments more in specific geographical markets and hotel brands, as indicated by the higher average levels of market and brand concentration (as measured by a Herfindahl-Hirschman index) for those investors in comparison to their specialist counterparts.

[Insert Table 1 about here.]

In sum, the descriptive statistics presented here suggest that there is little difference in average sector experience and acquisition scale between PE specialists and generalists, but PE generalists are more concentrated geographically as well as by hotel brand.

2.2 *Descriptive Statistics on Hotel Transactions Data*

Table 2 presents frequency statistics on the hotel transactions completed by all investor types in our sample (PE and non-PE). Panel A shows that transactions of single hotels represent the most frequent transaction type in our sample (70%), followed by portfolio transactions (21%), and entity-level deals (9%). In Panel B, we list the top-10 most frequently observed cities and hotel brands in our data set. The statistics reported indicate that hotel transactions occur across a broad range of locations and comprise independent hotels as well as businesses associated with a diverse set of brands.

[Insert Table 2 about here.]

The left column of Panel C shows the top-10 buyer types, using the RCA classification and terminology, based on the first-mentioned (lead) buyer for each transaction. It also shows the number of hotel purchases for each buyer type. The statistics reported indicate that owner-operators account for the majority of transactions (64%). PE acquisitions account for 15% of the sample, which makes PE the second most important buyer type, behind "developer-owner-operator," and before REITs. The center and right columns of Panel C show the top-10 PE buyers and non-PE buyers, again based

on the lead buyer for each transaction. The statistics presented show that Blackstone is the most important PE buyer, representing 5% of the total number of transactions. The composition of non-PE buyers is more dispersed, with the top non-PE buyer (Apple REIT, which specializes in upscale hotels) accounting for only 1% of transactions. In Panel D of Table 2, we show the distribution of hotel transactions over the presence of a PE buyer and/or a PE seller. Here, we expand the definition of PE buyers and sellers to include all transactions where a PE investor was identified as one of the investors recorded for each transaction in the RCA data (not just the lead investor). By this metric, PE buyers (sellers) were involved in 16% (10%) of the transactions in our sample. Based on the same expanded definition of PE buyers and sellers, Panel E of Table 2 shows that specialist PE investors acted as buyers (sellers) in 499 (387) hotel transactions. Given 6,799 hotel transactions involving PE investors in total (cf. Panel D), specialist PE investors account for 13% of those transactions.

Figure 1 depicts the total annual U.S. hotel acquisitions (in terms of dollar volume and number of properties) over the 2001–2019 period, based on the RCA transactions data. The total volume of hotel acquisitions in our sample amounts to $537 billion, $161 billion of which is accounted for by PE investors and $376 by non-PE investors. Within PE investors, $17 billion of acquisitions were completed by PE specialists and $144 billion by PE generalists.

[Insert Figure 1 about here.]

Panel A of Figure 1 provides a breakdown of annual acquisition volumes with a PE buyer versus those with no PE buyer. The figure shows that both PE and non-PE investors were active buyers of hotel assets in the period leading up to the global financial crisis. However, non-PE acquisition volumes have increased beyond pre-crisis levels in the latter part of the sample period, whilst PE acquisition volumes have remained below their pre-crisis heights. Panel B shows that the numbers of hotels acquired and the volume of acquisitions completed by specialist PE buyers peaked sooner than did those of generalist PE buyers in the run-up to the global financial crisis. PE generalists resumed their hotel investment activity post-crisis with a new peak in 2015 (albeit well below pre-crisis levels), whereas PE specialist investment activity remained muted.

Table 3 presents descriptive statistics on the hotels covered in the RCA transactions data. Panel A shows that hotels acquired by PE buyers have a higher average price per room and a lower average cap rate than those whose acquisitions do not involve PE buyers ($138,410 compared to $99,920,

and 7.9% compared to 8.6%, respectively). PE buyers are also more likely to complete portfolio transactions. Further, hotels acquired by PE investors are on average larger, they are more likely to be located in the central business district (CBD), and more likely to be full-service businesses.

In Panel B of Table 3, we provide descriptive statistics for hotels acquired by PE investors, focusing on specialist versus generalist PE investors. The table shows that specialist PE buyers on average acquire hotels at higher prices per room and at slightly lower cap rates than do their generalist counterparts ($162,950 versus $132,710 and 7.8% versus 7.9%, respectively). PE specialists are less likely to complete portfolio transactions than are PE generalists. Hotels acquired by specialist PE investors are, on average, larger, more likely to be located in the CBD, and more likely to have full-service operations.

[Insert Table 3 about here.]

2.3 Hotel Operating Performance Data

We collect accounting data on hotel operations from CBRE Hotels. CBRE gathers those data annually, based on a voluntary survey inviting participating hotels to submit their operating performance information in return for access to industry benchmarking reports. The CBRE survey covers about 7,000 hotels, which represent 15% of the hotels in the U.S. It is focused on institutional-grade, investable hotel assets; that is, those occupying the mid-market and higher chain scales, that are chain-affiliated (branded), and that operate under professional ownership and management companies.

The structure of the CBRE survey follows the industry-standard Uniform System of Accounts for the Lodging Industry (USALI), which facilitates comparisons across hotels.[6] The CBRE survey includes hundreds of variables, covering general information about the hotel (e.g., location, price segment, management, and ownership), top-line performance indicators (e.g., average daily rate and occupancy), aggregate measures of bottom-line hotel profitability, and granular data on revenues and costs across all hotel "departments" (e.g., rooms, food and beverage, and conference facilities).

We obtain data on two sub-samples of hotels from CBRE. First, we gather operating performance data for the period 2000–2018 for all hotels with a PE buyer or seller in the RCA database.

[6] Appendix A presents the USALI model of hotel profit and loss statements, as adopted in the CBRE survey. Based on the USALI accounting model, Appendix B presents the composition of hotel "departmental" revenues, departmental and "undistributed" (that is, operating overhead) expenses, and non-operating expenses as well as fixed charges for our sample hotels.

We focus on those hotels for which CBRE has at least one year of accounting data in the two years before any PE-involved transactions and at least one year of accounting data in the two years after such transactions (the "subject group"). This sample contains almost 19,000 observations for 1,274 distinct hotels (representing 1,839 individual hotel transactions).[7] Second, we construct a set of comparable hotels by matching transacted hotels in the subject group to peer businesses outside that group based on ZIP code, property type (e.g., resort hotel, extended stay hotel), chain scale (e.g., economy, upscale, luxury), and room count (the "control group"). This sample contains data for 1,310 hotels.[8] As we will outline more formally in Section 2.5, this strategy of using tightly defined control groups based on *ex ante* observable target firm attributes serves to address concerns around selection bias and the endogeneity of PE investment choices.

2.4 Descriptive Statistics on Hotel Operating Performance Data

Table 4 presents descriptive statistics for the CBRE data set. The data in Panel A show that subject and control hotels achieve similar average daily rates, occupancy, and revenues per available room. The average expense (profit) ratios across the subject and control hotels suggest that the hotels in the two groups experience comparable levels of operating efficiency. The statistics reported in Panel B indicate that, among PE-owned hotels, those under specialist PE ownership achieve higher average daily rates and higher revenues per available room than do those under generalist PE ownership. However, the average expense (profit) ratios across hotels owned by specialist and generalist PE investors are quantitatively similar. In sum, Table 4 suggests no economically significant differences in key observable operating performance metrics across the subject and control hotels, or across subject hotels owned by specialist versus generalist PE investors.[9]

[Insert Table 4 about here.]

[7] Our sample includes 6,799 individual hotel transactions involving a PE investor in the RCA data. We thus have operating performance data relating to 27% of all "PE transactions."

[8] If the same subject hotel is involved in a PE transaction more than once, it can exceptionally be matched to different control hotels, depending on the availability of data.

[9] This operating performance comparison is unconditional and includes all observations of subject and control hotels (and all observations of the hotels owned by specialist versus generalist PE investors), regardless of the observations' timing relative to any PE investments.

2.5 *Identification Strategy*

The key challenge to identifying the causal effects of PE ownership on hotel performance outcomes is that the matching of PE investors to their target firms is non-random. For instance, PE investors may select underperforming firms to engineer an operational turnaround (Cohn et al., 2020). If that was the case, then any evidence we provide for a positive effect of PE ownership on hotel operating performance may be driven by those investors' asset selection strategies, rather than their superior management skills.

We address this identification issue by following the practice adopted in prior studies on the effects of PE ownership on target firms' performance (see, e.g., Bharath et al., 2014; Davis et al., 2014; Biesinger et al., 2020) and match subject hotels (those eventually acquired by PE investors) to control hotels (those backed by other, non-PE investors) based on *ex ante* observable characteristics. Those characteristics include time-invariant observable features of the hotel assets in our sample, which, as we will show, result in matched pairs of subject and control hotels with comparable performance outcomes leading up to the PE investors' acquisitions of their target hotels. In other words, our matching procedure ensures that subject and paired control hotels are likely to experience the same macroeconomic and industry-level shocks and should have similar future growth expectations.

As outlined in Section 2.3, we match hotels based on their location, hotel type, chain scale, and hotel size. We then compare the annual time-series of raw operating performance measures across the subject and characteristics-matched control hotels in event time. Event time for both types of hotels is measured relative to the year in which a PE investor acquired a given subject hotel.

Figure 2 presents the time-series of top-line performance measures, expense ratios, and profit ratios, respectively, across the subject and characteristics-matched control hotels for the five years leading up to the year in which PE acquired a given subject hotel, denoted year zero.

[Insert Figure 2 about here.]

Panels A through C of Figure 2 show the annual average daily rate, occupancy, and revenue per available room, respectively, across subject and control hotels in event time. The time-series patterns depicted indicate parallel trends in the evolution of those top-line performance measures across the subject and control hotels in the period leading up to the acquisitions of the subject hotels by

PE. The overlap in the 90% confidence intervals included in the time-series plots indicates that the levels of those variables leading up to the year of a PE acquisition are statistically indistinguishable across the subject and control hotels in most of the years included in those comparisons.

Panels D through G present yearly means of the ratios of departmental expenses, undistributed expenses, non-operating expenses, and fixed charges to total revenues, respectively. The figures show that there are no statistically or economically significant differences in the expense ratios across subject and control hotels in the five years leading up to PE acquisitions of the subject hotels.

Panels H through K show annual average hotel profit measures (departmental, gross operating profit, EBITDA, and net income), each scaled by total hotel revenues, across subject and control hotels in event time. Reflecting the patterns observed in the expense ratios depicted in Panels D through G, all profit ratios included in this comparison are statistically and economically similar across subject and control hotels in the five years leading up to PE investments.

The time-series patterns presented here suggest that our approach of matching subject and control hotels on observable characteristics produces firm pairs with comparable operating performance outcomes pre-PE investment, likely implying comparable (though unobservable) current attributes and similar future growth expectations as well. This finding gives us some comfort that we are not erroneously attributing any post-acquisition changes in the operating performance of subject hotels to their PE ownership when those changes are really the product of PE-specific asset selection strategies.

3 Hotel Operating Performance under Private Equity Ownership

We assess the effects of generalist and specialist PE ownership on hotel operating performance using the detailed financial data from CBRE presented in Section 2.3. Notably, we study top-line performance measures, expense ratios, and profit ratios. We further document the channels through which PE ownership affects these hotel operating performance outcomes. Finally, we analyze data on guest satisfaction scores from Tripadvisor as an alternative measure of hotel operating performance.

3.1 *The Effects of PE Ownership on Hotel Operating Performance*

We formalize the analysis of hotel operating performance under PE ownership using a difference-in-differences strategy across the subject hotels and their characteristics-matched control hotels around the time of PE investments in the subject hotels. Our specification is similar to that employed in, for example, Biesinger et al. (2020). In contrast to the econometric model in that study, however, our set-up additionally accounts for different types of PE investors (namely, generalist and specialist PE investors, as defined in Section 2.1). Specifically, we estimate regressions of the following form:

$$y_{i,t} = \alpha + \beta PE_i^{Gen} \times Post_{i,t}^{Gen} + \gamma PE_i^{Spec} \times Post_{i,t}^{Spec} + \delta Post_{i,t}^{Gen} + \eta Post_{i,t}^{Spec} + \phi_i + \theta_{l,t} + \epsilon_{i,t} \quad (1)$$

where $y_{i,t}$ is an operating performance outcome for hotel i in year t. PE_i^{Gen} (PE_i^{Spec}) is an indicator that takes the value of one for the hotels in the subject group acquired by generalist (specialist) PE investors, and zero for the hotels in the control group. $Post_{i,t}^{Gen}$ ($Post_{i,t}^{Spec}$) equals one starting with the year in which a generalist (specialist) PE acquires a given subject hotel and zero before then. For the control hotels, these variables equal one starting with the year in which PE investors first acquire their matched subject hotels and zero before then. The main coefficients of interest are β and γ. These coefficients are identified, respectively, from the interaction terms between the indicators separating the subject and control hotels and from the indicators separating the pre-PE periods from the post-PE periods. ϕ_i are hotel fixed effects, which subsume the main effects of the PE_i^{Gen} and PE_i^{Spec} indicators. $\theta_{l,t}$ are region l $\times$ year t fixed effects.[10] $\epsilon_{i,t}$ denotes the residuals. Standard errors are clustered by hotel brand.

We estimate Eq. (1) on the operating performance data from the five years leading up to and the five years following the year when PE first invests in a given subject hotel. Table 5 presents the results. We also report F-statistics from tests of the equality between the coefficients of interest, β and γ.

[Insert Table 5 about here.]

Panel A shows the estimation results for the top-line performance metrics (average daily rates, occupancy, and revenues per available room) across the subject and control hotels. For PE

[10] In the RCA transactions data, the geographical regions of the U.S. include Mid-Atlantic, Midwest, Northeast, Southeast, Southwest, and West.

generalists, the regression results reported indicate that PE ownership has no significant impact on hotel top-line performance. For PE specialists, we observe a marginally significant increase in average room rates, but this does not translate to significantly higher revenues per available room.[11] In sum, our results suggest that key metrics of hotel revenue growth in PE-owned hotels are indistinguishable from those in their characteristics-matched control hotels.[12]

We report the regression results from estimating the difference-in-differences model in Eq. (1) for the four key hotel expense ratios included in the CBRE survey in Panel B. The estimation results show a statistically significant impact of both generalist and particularly specialist PE ownership on departmental expenses (see column 1). The unconditional mean of the departmental expense ratio is 0.30 (0.32) for hotels owned by generalist (specialist) PE investors (cf. Table 4). The coefficient estimate of –0.008 (–0.020) for the interaction term between PE_i^{Gen} and $Post_{i,t}^{Gen}$ (PE_i^{Spec} and $Post_{i,t}^{Spec}$) implies that departmental expenses decline by approximately 3% (more than 6%) relative to their unconditional means under generalist (specialist) PE ownership. These improvements in operating efficiency can have a significant impact on the bottom line, as departmental expenses represent nearly 50% of total hotel expenses. By contrast, the estimation results suggest that generalist PE ownership is associated with (numerically, but not statistically) slightly higher undistributed, non-operating, and fixed expenses. While specialist PE investors incur significantly higher non-operating expenses, they experience significantly lower fixed expenses (see columns 3 and 4, respectively). The findings discussed here suggest that generalist PE owners have limited effects on hotel operating efficiency.

Panel C of Table 5 presents the final set of regression results on the impact of PE ownership on hotel operating performance. These estimation results focus on hotel profit ratios. Consistent with our earlier finding that PE ownership is associated with a significant decline in departmental expense ratios, the estimates reported in column 1 of Panel C show that subject hotels experience superior departmental profit ratios under PE ownership compared to their characteristics-matched control hotels. The descriptive statistics in Table 4 indicate that the mean departmental profit

[11] Since hotel revenues are dominated by rooms revenues (see Figure B.1A), a lack of gains in ADR or occupancy for subject hotels means those businesses are unlikely to experience higher revenue levels or stronger revenue growth under PE ownership. We verify those conjectures in a formal regression setting and, consistent with our expectations, find no significant effects of (generalist or specialist) PE ownership. Those results are available upon request.

[12] We note that stoking target firm revenue growth post-acquisition is a popular PE investment strategy in other industries (see, e.g., Cohn et al., 2020; Fracassi et al., 2020). The evidence we present suggests that this is not the case in the hotel industry. Our findings are consistent with PE investors prioritizing different asset management strategies depending on the requirements of the specific investment sectors in which they operate (see also Biesinger et al., 2020).

ratio for hotels owned by generalist (specialist) PE investors is 0.70 (0.68). Therefore, while the impact of generalist (specialist) PE ownership on the departmental profit ratios of the subject hotels is statistically significant, it is small in economic terms, representing a relative improvement of 1.1% (2.9%) over the corresponding unconditional mean departmental profit ratios. The estimates reported in columns 2 through 4 of Table Panel C show that gross operating profit, EBITDA, and net income are statistically indistinguishable between generalist PE-owned subject and control hotels. In other words, the relative operating performance advantage of generalist PE subject hotels over their characteristics-matched peers stemming from superior departmental profits does not carry through to any of the subsequent profit ratios.[13] However, hotels owned by specialist PE investors experience not only higher departmental profit ratios, but also higher operating profit margins and significantly higher net income margins. Recall that PE specialist-owned hotels experience substantially lower departmental expense ratios—those are responsible for boosting departmental profits. Significantly lower fixed expenses in specialist PE-owned hotels drive the increase in net income margins. Those additional cost savings achieved by specialist PE investors increase their bottom-line profits compared to those earned by their generalist counterparts.

3.2 The Channels Through Which Private Equity Influences Hotel Operating Performance

We dig deeper into the two key findings from the preceding analysis. We observed that subject hotels owned by generalist and specialist PE investors experience a significant improvement in departmental expense ratios, leading to higher departmental profits. However, only specialist PE-owned hotels benefit from improved bottom-line profit ratios in terms of higher net income margins. In this section, we provide further analyses on these operating performance patterns.

First, we explore the drivers behind the reduction in departmental expenses, which leads to the improvement in departmental profits. Labor expenses are the largest component of hotel departmental expenses, representing nearly 60% of the total. PE investors have been shown to shift the composition of the workforce in their target firms towards cheaper employees (Fang et al., 2021).

[13]The regression analyses presented in Table 5 compare the average operating performance outcomes across subject and control hotels across the five years leading up to the acquisitions of the subject hotels by (specialist and generalist) PE investors with the corresponding average operating performance outcomes in the five years following those acquisitions. We also examine year-by-year effects of (specialist and generalist) PE ownership on operating performance outcomes. Those results are reported in Appendix C.

We assess the evidence for the hypothesis that PE investors reduce labor costs in their target hotels by replicating the regression model specified in Eq. (1) for the ratio of departmental labor expenses to total revenue, as well as for the corresponding labor expense ratios in each of the individual operating departments of the sample hotels. Those departments encompass rooms, food and beverage (F&B), and other (e.g., conference center, spa facility). The data for these analyses are obtained as part of the CBRE performance surveys.

Labor expenses may decline due to salary cuts for existing employees or due to a reduction in the staff employed. While we are unable to observe employee-level payroll data, we are able to obtain information on the number of staff employed by the sample hotels. We obtain data on the annual number of employees in the sample hotels from the Your Economy Time Series (YTS) database.[14]

Panel A of Table 6 presents the regression results from estimating Eq. (1) for departmental labor expenses ratios and the (log) number of employees in the sample hotels. The estimates reported in column 1 show that total departmental labor expenses decline significantly for hotels under generalist PE ownership, and even more so under specialist PE ownership. The coefficient estimates in column 2 show that, for specialist PE-owned hotels in particular, this expense reduction is primarily driven by a decline in labor expenses in the rooms department. The results presented in columns 3 and 4 show that there are hardly any reductions in the labor expenses in the F&B and other operating departments. The estimates reported in column 5 suggest that the decline in departmental labor expenses is at least partly driven by a reduction in the number of staff employed in hotels owned by (generalist and specialist) PE investors, although the coefficient estimates on the interaction terms of interest are statistically insignificant.

[Insert Table 6 about here.]

The results discussed above suggest that hotels owned by PE investors outperform their peers in terms of departmental expenses due to lower labor expenses. This cost advantage results in superior departmental profits for hotels with PE funding. However, as discussed in subsection 3.1, our results show that the gross operating profit of generalist PE-owned hotels is no different

[14]YTS is an annual establishment-level census that reports, for each business registered in the U.S., a number of characteristics, such as business name, industry, address, and the number of staff employed at year-end. We merge employment data from YTS with the operating performance and ownership data on our sample hotels by business address. On this basis, we observe employment information on 1,565 out of 2,584 subject and control hotels, representing 60% of all hotels in our sample.

from that of their peers. To identify the operating overhead expense items driving this finding, we replicate the regression model from Eq. (1) for each of the undistributed expense ratios reported in the CBRE benchmarking survey.

Panel B of Table 6 presents the estimation results. The estimates reported in columns 1 and 2 show that A&G and IT expenses, respectively, are statistically indistinguishable between hotels backed by generalist PE funds and those owned by other investor types. In contrast, the results tabulated in column 3 show that generalist PE ownership is associated with significantly higher sales expenses. The estimates in column 4 show a small reduction in maintenance expenses for generalist PE-owned hotels. However, sales expenses represent a significantly larger share of total undistributed expenses than do maintenance costs. Therefore, the small savings realized by generalist PE-backed hotels under the latter expense item cannot offset the higher sales expenses. Specialist PE-owned hotels on the other hand experience significant reductions in A&G and maintenance expenses and marginal increases in IT expenses (see columns 1, 2, and 4).

The results presented in Panel C and Panel D of Table 6 show that generalist PE ownership has limited effects on non-operating expenses and fixed charges incurred by subject hotels—with one notable exception. The estimates reported in column 1 of Panel C indicate that the subject hotels experience a significant decline in management fees under generalist PE ownership. We will examine this finding in more detail in Section 4.2. By contrast, hotels owned by specialist PE investors experience not only lower management expenses (see column 1 of Panel C), but also lower property tax and other expenses (alongside higher rent expenses—see columns 2, 4, and 5, respectively).[15] In addition, the estimates in Panel D of Table 6 show that specialist PE investors also benefit from lower interest expenses and from lower expenses related to amortization and depreciation (see columns 1 and 2, respectively). These results suggest that one strategy of specialist PE investors is to rent rather than own hotel property and equipment.

In sum, the regression results presented in Table 6 suggest that the superior operating performance of generalist PE-backed hotels over those backed by other, non-PE investors—notably the decline we document in departmental profits, which is driven by lower labor expenses—is offset by increased spending on sales and marketing. This result explains why the subject hotels

[15]Under USALI rules, rent expenses encompass operating leases, ground lease rent, and rentals of property and equipment, other than those rented for a specific function or event, such as a specific banquet. Examples of rent expenses include land and building leases, information systems, telecommunications or audiovisual equipment, and vehicle leases.

owned by generalist PE investors fail to improve their bottom line profits relative to the control hotels. Our estimates suggest that specialist PE investors on the other hand achieve further cost savings beyond labor expenses, most notably on the level of fixed charges. These additional cost reductions increase the bottom line profits to specialist PE investors in terms of net income margins. Importantly, our results suggest that PE specialists have a larger positive influence on more margins of hotel operating performance than do their generalist peers.

3.3 Guest Satisfaction as an Alternative Measure of Hotel Operating Performance

As an alternative measure of operating efficiency, we consider hotel guest satisfaction data. We merge our hotel operating performance and ownership data with information on guest experience ratings from Tripadvisor.[16] On this platform, hotel guests can leave scores on a scale from one through five to rate several aspects of their stay at a given hotel; namely, overall satisfaction, service, cleanliness, and sleep quality. We estimate the marginal effects of PE ownership on the ratings for the subject hotels relative to those for the control hotels using a specification analogous to that in Eq. (1). We summarize the results in Table 7.

[Insert Table 7 about here.]

The coefficient estimates tabulated in columns 1 through 4 of Table 7 show that the mean guest review scores received by the subject hotels under generalist PE ownership are statistically indistinguishable from those received by their characteristics-matched control hotels owned by other investor types. By contrast, the coefficients for PE specialists are all negative. In particular, the estimates in column 2 show that guest ratings of service quality decline by a numerically and statistically significant margin for specialist-PE owned hotels. Our findings imply that the cost-cutting measures implemented by specialist PE investors in their hotels may compromise the quality of their guests' experiences.

We dig deeper into these findings using graphical analyses, shown in Figure 3. First, we examine the timing of the negative effects of PE ownership on hotel guest experience ratings in detail. Panel

[16] Tripadvisor collects guest experience ratings from individual stays for thousands of hotels in the U.S. We collapse the scores recorded in each review for a given hotel and a given date of stay to the hotel-year level by taking the simple means of the scores provided in each rating category. We match those scores to our hotel operating performance and ownership data by hotel name and zip code. We are able to match guest experience scores to 2,406 hotels or 93% of the 2,584 subject and control hotels in our sample.

A presents annual estimates of the effects of (specialist and generalist) PE ownership on hotel service quality scores. The patterns depicted indicate that specialist PE-owned hotels experience swift, lasting declines in service quality scores, starting with the year in which specialist PE investors take over the target hotels. However, an unconditional before versus after comparison of service quality scores distributions in PE-owned hotels shows a decline in the dispersion of those scores, driven almost exclusively by the highest scores in the distribution (see Panel B). Still, recall that PE-owned hotels experience no significant declines in average daily rates or occupancy (cf. Section 3.1), which might arise as a consequence of lower service quality. These patterns suggest that PE investors reduce service quality only to a point where the benefits in terms of cost savings (and resulting higher profit margins) still outweigh the costs of such measures in terms of poorer guest experience ratings (and thus, eventually, lower revenues). In other words, the results presented here imply that PE investors navigate subtle trade-offs between customer satisfaction and their immediate financial objectives.

[Insert Figure 3 about here.]

4 Private Equity Investors and Long-Term Hotel Value

PE investors may enhance the long-term value of the hotels they acquire in ways that do not immediately translate to higher profitability. In the following set of tests, we explore the empirical evidence for two such mechanisms. First, we analyze the possibility that PE investors structurally improve the physical quality of their hotel assets through building renovations or expansions. Second, we test whether PE investors are more likely to replace the incumbent management company in the assets they acquire.

4.1 Capital Expenditures

Follow-up investments to renovate, expand, or otherwise improve the physical substance of a property represent a popular value-add strategy in real estate. We assess the empirical evidence for the likelihood of PE investors, relative to other investor types, to complete such follow-up investments in their hotel properties. To conduct this analysis, we obtain property-level data on hotel capital expenditures from Dodge Data & Analytics.[17] We then estimate the likelihood that

[17]Dodge Data & Analytics is a project-level database on commercial real estate construction starts across various property types, including hotels. Amongst other attributes, each project record contains information about the property;

a subject hotel undergoes a capital expenditure project in a given year under PE ownership using a linear probability model where the dependent variable is an indicator that takes the value of one if hotel i undergoes a capital expenditure project in year t, and zero otherwise. The independent variables are as in Eq. (1). We estimate separate regressions for each type of capital expenditure project included in the Dodge Data & Analytics database: additions, alterations (e.g., remodeling suites into regular guest rooms, or vice versa), conversions, and new construction projects.

Panel A of Table 8 presents the regression results. The coefficient estimates reported in columns 1 through 4 show that the subject hotels owned by generalist PE investors are no more likely to undergo any capital expenditure projects than are the characteristics-matched control hotels owned by other investor types. However, the estimates in column 2 indicate that specialist-owned hotels are significantly more likely to undergo alteration projects.

[Insert Table 8 about here.]

Our results suggest that the pay-back periods for undertaking significant construction projects may be too long for the typically short holding periods of generalist PE investors in the hotel industry. Our results imply that generalist PE investors in the hotel industry may prefer to implement value-add strategies yielding a quick boost to cash flows, rather than engaging in projects to improve the quality of their holdings in the long run. Specialist PE investors on the other hand appear to prefer more involved asset management strategies, implementing material changes to their hotels' business operations and to the physical structure of the hotel real estate assets they acquire.

4.2 Replacing the Incumbent Management Company

Hotel investors commonly hire third-party management companies to operate their hotels. Given the resulting separation of ownership and control, one might ask how PE investors influence the operations of their hotels in the first place. Interviews with PE asset management professionals in the hotel industry suggest that replacing the incumbent management company is a popular value-add

including its name, property type, and address, and about the construction project; including, the planned start and completion dates, the type of project (addition, alteration, conversion, or new construction), and the value of the project. We match the construction data from Dodge Data & Analytics with the ownership data on our sample hotels by business location. On this basis, we are able to identify at least one type of capital expenditure project carried out for 981 or 38% of our sample hotels over the study period.

strategy for hotel investors. In the next set of analyses, we test whether PE investors are more likely than other hotel investor types to replace the management companies in the hotels they acquire.

We estimate the effects of PE ownership on the likelihood of a hotel experiencing a change in the management company relative to that for the control hotels by repeating our regression model but using as the dependent variable an indicator that takes the value of one if hotel i experienced a change in management company under the current ownership, and zero otherwise. The remaining variables and specification are identical to before. We first estimate this regression as a logit model, omitting the fixed effects listed in Eq. (1). We then replicate the estimation as a linear probability model, using OLS and including all fixed effects from Eq. (1).

Panel B of Table 8 presents the results. The estimates reported in columns 1 and 2 indicate that generalist PE investors are significantly more likely than other hotel investor types to replace the incumbent management company. Focusing on the estimates from the logit model in column 1, the coefficient on the interaction term $PE^{Gen} \times Post^{Gen}$ of 0.745 implies that the odds of a hotel experiencing a change in management company under generalist PE ownership are $\exp(0.745) = 2.11$ times those of hotels backed by other investors. In other words, generalist PE investors are more than twice as likely to replace the incumbent management company than are other hotel investor types.[18] The results also suggest that specialist PE investors are significantly more likely than other, non-PE investor types to replace the incumbent management team (though not substantially more likely to do so than are their generalist counterparts).

5 Capital Gains to Private Equity Investors in the Hotel Industry

In this part of our analysis, we ask whether PE funds realize higher capital gains on their investments than do other investor types. We assess the capital gains earned by PE versus other investor types in the hotel industry by focusing on a sample of repeat-sales transactions from RCA. Those

[18] PE investors in general may not have a material impact on current operating performance, but the long-term value strategies they employ—such as replacing the incumbent management company—may set up their hotel assets to outperform in future. This effect may be magnified if PE investors are particularly skilled at matching their hotels to future owners who can generate the greatest synergies. Such investors may earn higher future profits on the assets they acquire from PE sellers. We examine this proposition more formally in Appendix D, focusing on the operating performance of subject hotels under new ownership, after PE investors exit. Due to a lack of operating performance data from former specialist-PE owned hotels, we compare post-PE operating performance across subject and control hotels without distinguishing between specialist and generalist PE investors. The results reported in Appendix D show economically small and only weakly significant improvements in hotel operating performance after PE investors exit. The estimates shown do not point to any operational improvements attributable to the former PE owners.

observations are taken from the sub-set of hotel assets for which we observe an acquisition (by PE or other investor types) and the subsequent disposition. As we outline formally below, we compute the total capital gain on a given hotel investment as the difference between the log disposition and preceding log acquisition price (per room). Our repeat-sales sample contains 1,450 observations on capital gains earned by PE investors and 6,670 observations on capital gains earned by investors other than PE. The unconditional average holding period and average total capital gain in our sample of repeat-sales transactions are 5.0 years and 21.3% for PE investors compared to 5.3 years and 9.9% non-PE investors, respectively.

In Figure 4, we show the distribution of holding periods, and the average (total) capital gains for different holding period intervals, by investor type. The patterns depicted in Panel A show that transactions involving PE re-sellers in general are associated with substantially higher capital gains than are those involving no PE sellers, at least for holding periods of three to eight years. The data presented in Panel B of Figure 4 indicate that specialist PE re-sellers earn significantly higher capital gains than do their generalist counterparts for holding periods longer than one year.

[Insert Figure 4 about here.]

5.1 Repeat-Sales Analysis

We analyze the sources of the capital gains realized by PE investors in the hotel industry compared to other investor types more formally. Specifically, we assess the relative magnitude of the total capital gains realized by PE versus other hotel investor types by estimating the following regression model:

$$\Delta p_{i,t} = \alpha + \beta PESeller_{i,t}^{Gen} + \gamma PESeller_{i,t}^{Spec} + \delta Controls_{i,t} + \theta_l + \epsilon_{i,t} \tag{2}$$

where $\Delta p_{i,t}$ is the difference between the log price per room in the acquisition of hotel i and the log price per room in the subsequent disposition of hotel i sold in year t. $PESeller_{i,t}^{Gen}$ ($PESeller_{i,t}^{Spec}$) is an indicator that takes the value of one if a generalist (specialist) PE investor is the seller in a given transaction, and zero otherwise. We include the following covariates in Eq. (2), summarized in the term *Controls*: indicator variables that, respectively, take the value of one if the sale or the acquisition in the repeat transactions pair is a portfolio deal, and zero otherwise; an indicator that takes the value of one if a hotel was sold to an international investor, and zero otherwise; hotel

size, measured as the log number of rooms; the construction year of the hotel; an indicator for the location type of a hotel that takes the value of one for a CBD location, and zero otherwise; and an indicator for the sub-type of a hotel that takes the value of one for full-service hotels, and zero for limited-service hotels. θ_l are region fixed effects. $\epsilon_{i,t}$ denotes the residuals. Standard errors are clustered by hotel brand. We exclude entity-level deals from this analysis to remove any undue influence of large portfolio transactions. Table 9 presents the results.

[Insert Table 9 about here.]

The estimates reported in column 1 show that generalist (specialist) PE sellers achieve statistically and economically significantly higher capital gains (by 11 and 28 percentage points, respectively) on their hotel investments than do other investor types. In column 2, we control for the length of the holding period, which slightly reduces the economic magnitude on the coefficients of interest. In column 3, we control for the exact timing of acquisition and disposition, and we see that this explains most of the higher capital gains of generalist PE sellers. The marginal capital gains realized by those sellers are now close to zero and statistically indistinguishable from those realized by non-PE sellers. By contrast, the marginal capital gains to specialist PE investors remain economically and statistically significant in this specification. In column 4, we additionally control for region $\times$ resale year fixed effects, but the magnitude of the generalist and specialist PE effects, respectively, are unchanged. In columns 5 and 6, we repeat the models shown in columns 3 and 4, but replace the region indicators with more granular zip code indicators. The marginal capital gains accrued to generalist PE sellers (relative to those earned by non-PE sellers) are numerically negative in these specifications. The marginal capital gains to specialist investors are no longer statistically significant but the estimated effect remains economically large (+15.0%).

The results in Table 9 suggest that the higher unconditional capital gains of generalist PE investors do not reflect increases in their hotels' profit-generating capabilities. Generalist PE investors appear to derive their above-average capital gains from timing the market for hotel assets, and from selecting hotel assets in zip code locations that experience above-average price increases.

By contrast, specialist PE sellers are associated with numerically and statistically significant, positive capital gains between 15% and 28% compared to other, non-PE investor types across the different regression specifications presented in Table 9. These estimation results suggest that specialist PE

investors achieve superior capital gains over their competitors even after controlling for the length of the holding period, the timing of their acquisitions and dispositions, as well as their location choices. The superior capital gains earned by specialist PE sellers are consistent with the earlier-documented improvements in hotel operating efficiency and profit margins realized under their ownership.

5.2 The Role of Counterparties

Prior work highlights heterogeneity in real estate investor preferences, not only over the specific assets they acquire, but also over the types of counterparties with whom they trade (see, e.g., Badarinza et al., 2021; Ghent, 2021). A possible narrative in the PE industry would be that PE investors systematically buy from specific seller types, e.g., private hotel owners, and subsequently sell to different investor types, such as, institutional investors. In the RCA data, we observe the identities and investor types of buyers and sellers for the sample transactions included in our analyses. Figure 5 presents overlaid histograms for the distributions of buyer and seller types with whom PE and non-PE investors (respectively, PE specialist and generalist investors) traded hotel properties over the 2001–2019 period.

[Insert Figure 5 about here.]

Panel A shows that non-PE investors buy predominantly from private investors (in over 60% of transactions), while PE investors buy from public and private investors (in approximately 40% of transactions each). The data presented in Panel B show that non-PE investors sell primarily to private investors (in nearly 80% of transactions), whereas PE investors sell to private investors (in approximately 60% of transactions) and, to a lesser degree, to institutions (in less than 20% of transactions).

Panel C shows that PE specialists buy mostly from private investors (in over 60% of transactions), whereas PE generalists buy from public and private hotel owners (in approximately 40% of transactions each). By contrast, the patterns depicted in Panel D indicate that PE specialists sell mostly to private investors (in approximately 60% of transactions), while PE generalists sell to private and institutional investors (accounting for approximately 60% and 20% of transactions, respectively).

The analysis presented in Figure 5 suggests that PE investors may indeed act as intermediaries in the hotel real estate market, transferring investment assets from public owners to private owners, for instance. However, the patterns shown in 5 also suggest that such trading behaviors are driven

by generalist PE investors, whereas PE specialists mostly buy from private investors and sell to private investors. Thus, it is possible that the type of counterparties with whom PE investors trade hotel assets plays a role in determining their capital gains, at least for generalist PE investors.

We formalize the analysis of this conjecture by augmenting the repeat-sales analysis from Eq. (2) with fixed effects capturing the types of sellers from whom PE (specialist and generalist) investors buy and the types of buyers to whom those investors sell. Table 10 presents the results.

[Insert Table 10 about here.]

For reference, the estimates presented in column 1 of Table 10 replicate the results from the corresponding column in Table 9. Those estimates indicate that PE generalists (specialists) earn 11% (28%) higher capital gains than do their non-PE counterparts. The estimates in column 2 show that including fixed effects for the types of investors to whom PE specialists and generalists sell their hotel assets has little effect on the statistical significance or economic magnitude of those relative capital gains. The results reported in column 3 show that the relative capital gains earned by PE specialists are also insensitive to additionally controlling for the types of investors from whom those specialists originally bought their hotel properties. However, the estimated relative capital gains earned by PE generalists over other, non-PE investors drops from 11% (cf. column 1) to 7.3% (column 3).

In sum, the results presented here indicate that the types of owners from whom PE (generalist) investors buy their hotel assets play at least a small role in explaining their relative capital gains over non-PE hotel investors. Those findings are consistent with PE investors acting as intermediaries in the hotel real estate capital market, who derive returns from identifying types of hotel owners that under-value their investment assets.

6 Financing of Acquisitions

Thus far, our analyses of PE investments in the hotel industry covered unlevered returns. However, Ivashina and Kovner (2011), Axelson et al. (2013), and Haque (2021) highlight the importance of leverage choices in PE investments. The RCA transactions records also include information on the mortgages used to finance hotel acquisitions, including the interest rate, the term of the mortgage contract, the debt service coverage ratio (DSCR), and the loan-to-value (LTV) ratio at underwriting. We test whether PE investors enjoy more favorable financing conditions than do other investor

types by estimating the following regression model for the hotel acquisitions in our sample:

$$y_{i,t} = \alpha + \beta PEBuyer_{i,t}^{Gen} + \gamma PEBuyer_{i,t}^{Spec} + \delta PriceRoom_{i,t} + \eta_i + \phi_m + \theta_{l,t} + \epsilon_{i,t} \quad (3)$$

where $y_{i,t}$ denotes a given mortgage characteristic (interest rate, term, DSCR, or LTV). $PEBuyer_{i,t}^{Gen}$ ($PEBuyer_{i,t}^{Spec}$) is an indicator variable that takes the value of one if hotel i at time t is bought by a generalist (specialist) PE buyer, and zero otherwise. $PriceRoom_{i,t}$ is the log price per room in the transaction of hotel i at time t. η_i are hotel fixed effects. ϕ_m are lender fixed effects. $\theta_{l,t}$ are region $l \times$ year t fixed effects. $\epsilon_{i,t}$ denotes the residuals. Standard errors are clustered by hotel brand.

We summarize the regression results in Table 11. The coefficient estimates in column 1 show that generalist PE buyers pay 30 basis points lower interest rates on the mortgage contracts used to finance their hotel acquisitions than do non-PE investor types. The estimates reported in column 2 show that debt maturities are similar across mortgage contracts taken out by generalist PE and non-PE borrowers. The lower interest rates negotiated by generalist PE borrowers are (at least partly) reflected in significantly higher debt service coverage ratios at underwriting (see column 3). The coefficient estimates reported in the final column 4 show that LTV ratios are similar across mortgages to generalist PE and non-PE borrowers.

The regression results reported in Table 11 also show that the financing conditions faced by specialist PE buyers are statistically indistinguishable and economically similar to those experienced by other non-PE investor types (see columns 1 through 4). However, the results in column 1 (column 3) suggest that specialist PE investors face higher interest rates (lower debt service coverage ratios) than do their generalist PE counterparts.

[Insert Table 11 about here.]

In sum, we find some evidence that generalist PE investors are able to access cheaper debt capital to finance their hotel investments than do other investor types. By contrast, specialist PE investors do not appear to enjoy the same access to attractively priced debt as do their generalist peers.

7 Conclusion

We study the PE industry's investments in the U.S. hotel sector over the past two decades. For our analyses, we create a novel data set covering the entire life-cycle of asset-level investments from acquisition, to operations, long-term asset management measures, and the eventual dispositions. We augment this data set with hand-collected information to classify PE investors in the hotel industry into sector specialists and generalists. We then combine matching methods with a difference-in-differences approach to assess the relative operating performance of PE-owned hotels versus that of characteristics-matched control hotels backed by other investor types.

We provide evidence consistent with distinct investment strategies across those PE investor types, reflecting the degree to which underlying the asset management skills can be transferred across investment settings. Notably, our results suggest that hotels owned by specialist PE investors experience improvements in operating efficiency and significantly higher bottom-line profits. We also find evidence that specialist PE investors implement asset management measures that can improve hotels' profit-generating capabilities in the long run. Generalist PE investors achieve significantly higher capital gains on their hotel investments than non-PE investor types on average, but the difference vanishes once controlling for the length of the holding period, the timing of acquisitions and dispositions, and for hotel locations. The superior capital gains of specialist PE investors persist even after accounting for such controls. Those gains likely reflect the improved operating profitability of specialist PE-owned assets. By contrast, generalist PE funds' main comparative advantage in commercial real estate markets may be their access to cheap financing.

In sum, our results suggest that there is significant heterogeneity in the investment strategies adopted by different types of investors under "the PE model." Those distinct approaches to asset management play a significant role in shaping the relative investment performance outcomes for specialist and generalist PE investors compared to each other and relative to non-PE investors.

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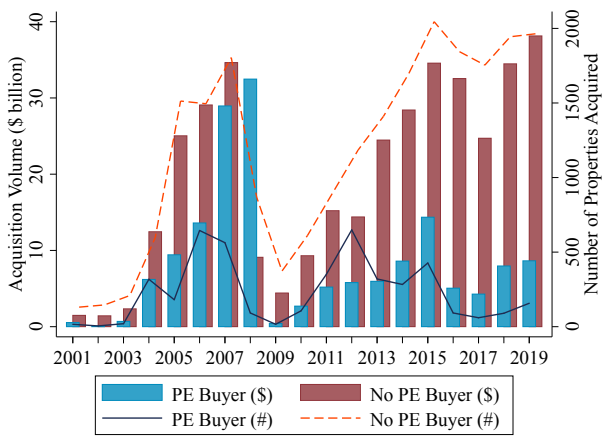
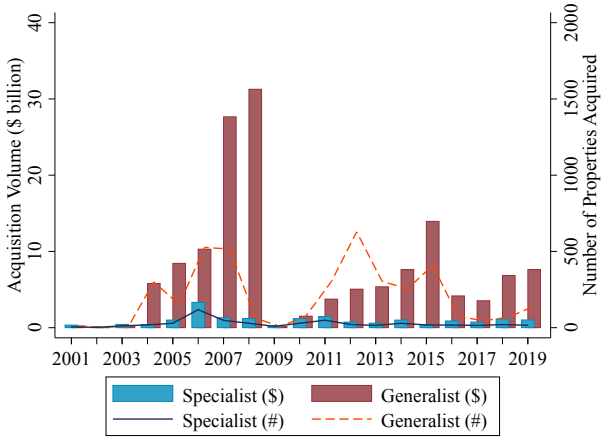
Figure 1. Hotel Acquisition Volumes by Investor Type

This figure depicts aggregate annual U.S. hotel acquisition volumes (in terms of US$ billion and numbers of properties) over the 2001–2019 period. Panel A provides a breakdown between the acquisitions with a PE buyer versus those without a PE buyer. Panel B focuses on PE acquisitions only and provides a breakdown between the acquisitions with specialist PE buyers versus those with generalist PE buyers. The hotel transactions data used to produce this figure are from RCA.



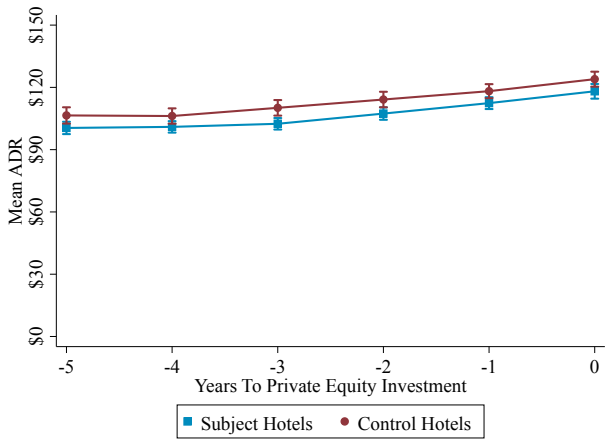
(A) PE Investors versus No PE Investors



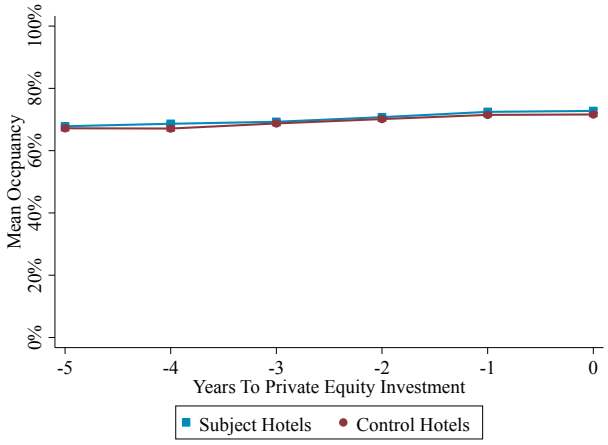
(B) PE Specialists versus PE Generalists

Figure 2. Hotel Performance Leading Up To Private Equity Investment

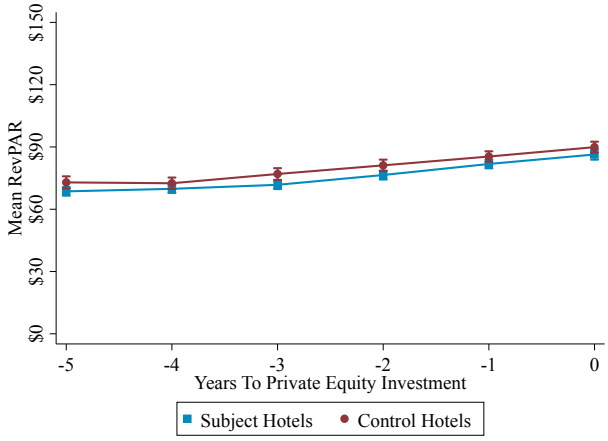
This figure depicts the annual mean performance measures for the subject hotels and their characteristics-matched control hotels in the five years leading up to PE investments in the subject hotels. Panels A through C show top-line performance measures (ADR, Occupancy, and RevPAR). Panels D through G show expense ratios (departmental, undistributed, non-operating expenses, and fixed charges, each scaled by total hotel revenues). Panels H through K show profit ratios (departmental, gross operating profit, EBITDA, and net income, each scaled by total hotel revenues). The annual time-series of each of these performance measures are shown in event time, where year 0 represents the year in which a given subject hotel received PE funding. The time-series of the performance data for the characteristics-matched control hotels assigned to each of the subject hotels are measured on the same timeline, reaching from five years prior to the PE investment in a given subject hotel to the year of that investment. The hotel performance data used to produce this figure are from CBRE.



(A) Average Daily Rate

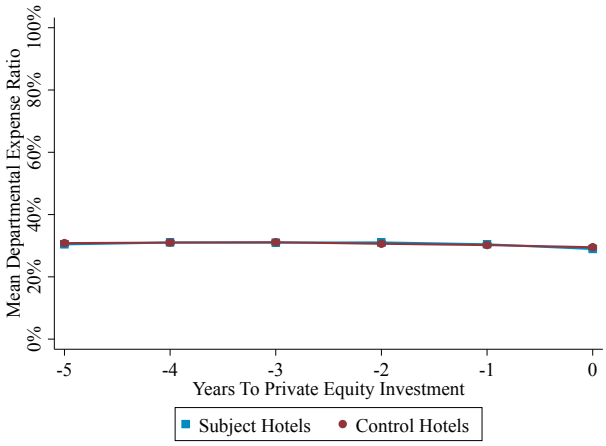


(B) Occupancy

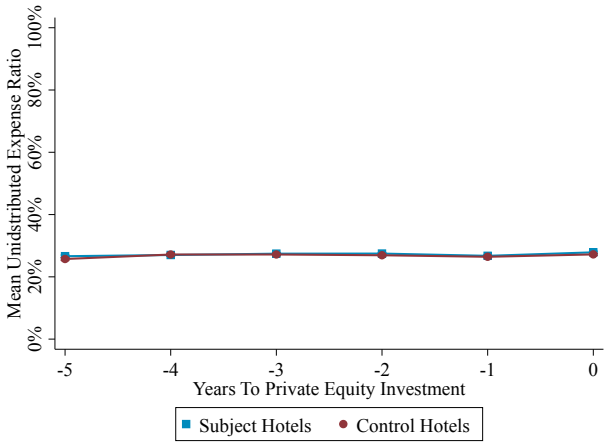


(C) RevPAR

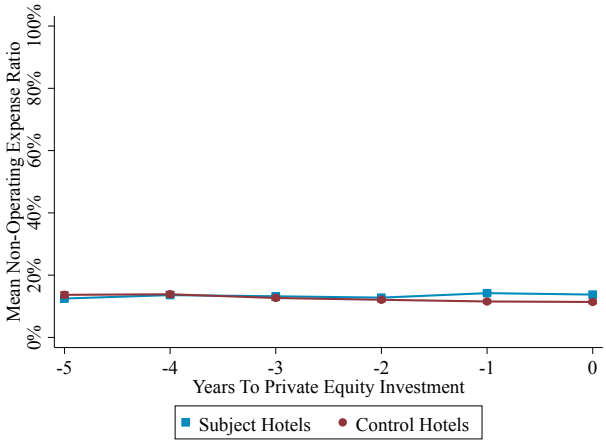
Figure 2. Continued



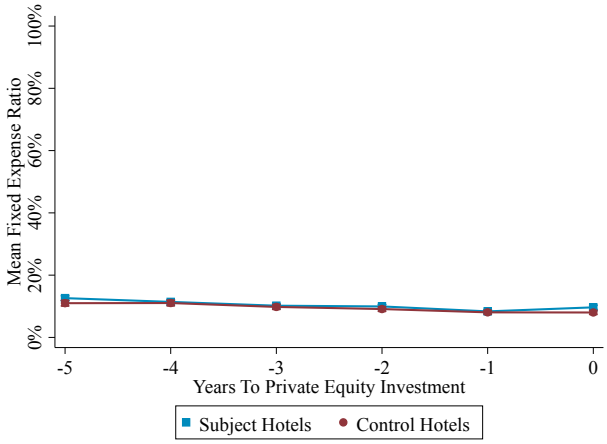
(D) Departmental Expenses



(E) Undistributed Expenses

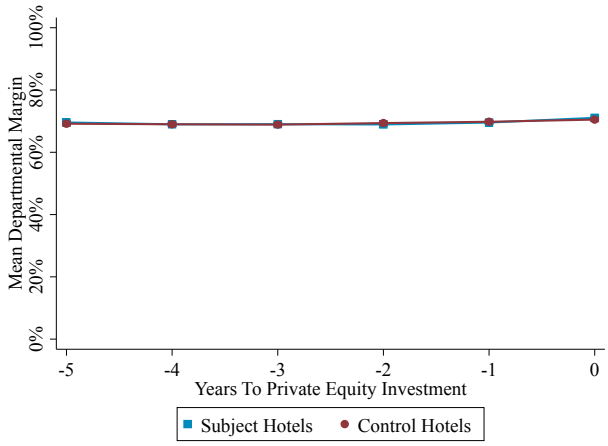


(F) Non-Operating Expenses

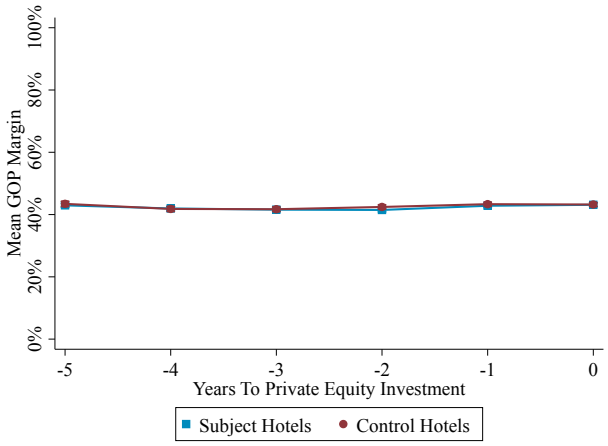


(G) Fixed Charges

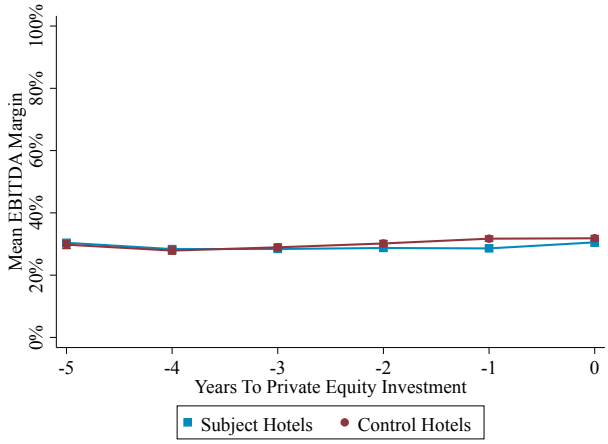
Figure 2. Continued



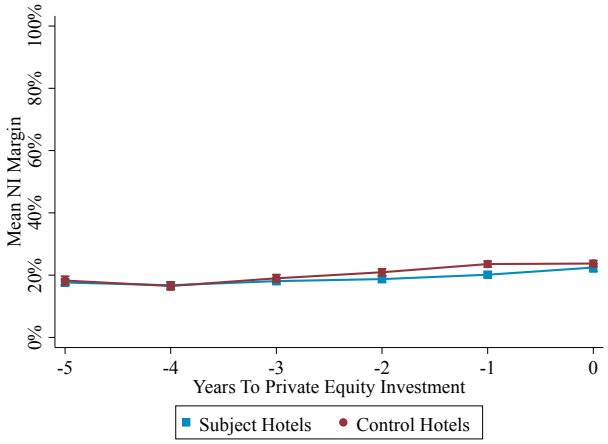
(H) Departmental Profit



(I) Gross Operating Profit



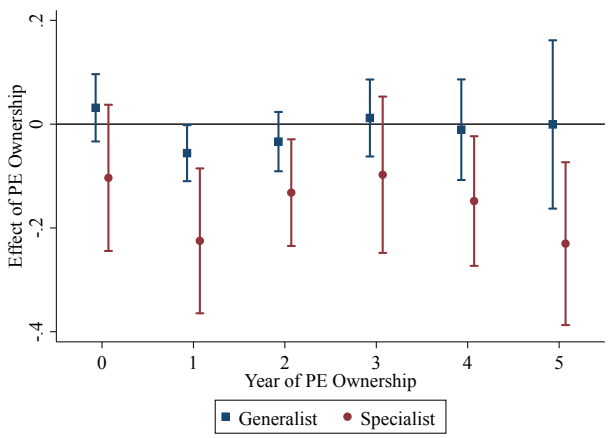
(J) EBITDA



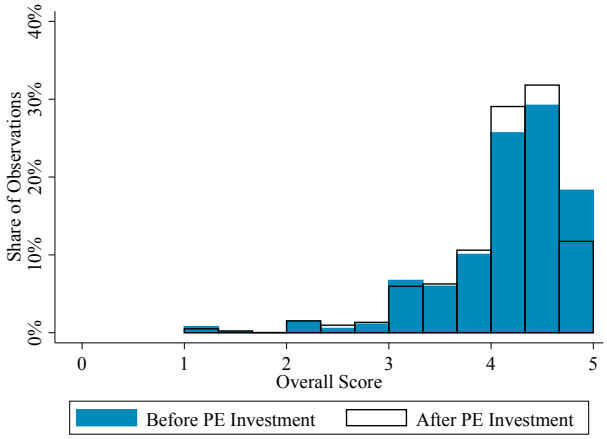
(K) Net Income

Figure 3. Hotel Guest Experience Ratings under PE Ownership

This figure depicts details on the effects of PE ownership on hotel guest experience ratings, notably, on scores for service quality. Panel A presents annual coefficient estimates of the effects of PE specialist and generalist ownership on those scores, starting with the year of (specialist and generalist) acquisitions of their target hotels through year five of PE ownership of those hotels. The annual coefficient estimates on specialist and generalist PE ownership are derived from Eq. (C.1). Panel B presents overlaid histograms of the unconditional distributions of hotel service quality scores for the subject hotels before versus after PE investors acquire those hotels. The data on service quality scores are from Tripadvisor. The data on hotel ownership (and the timing of PE investments) are from RCA.



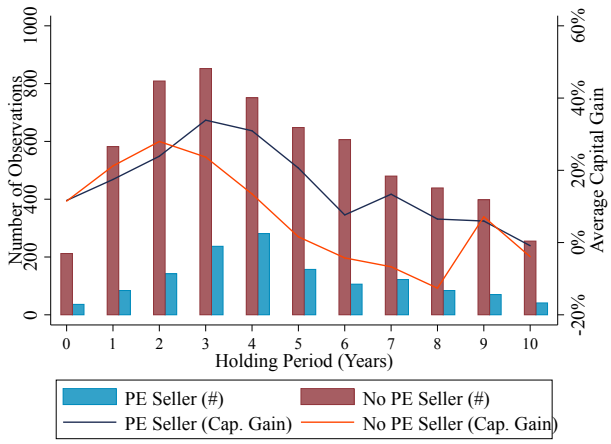
(A) Annual Effects on Service Scores



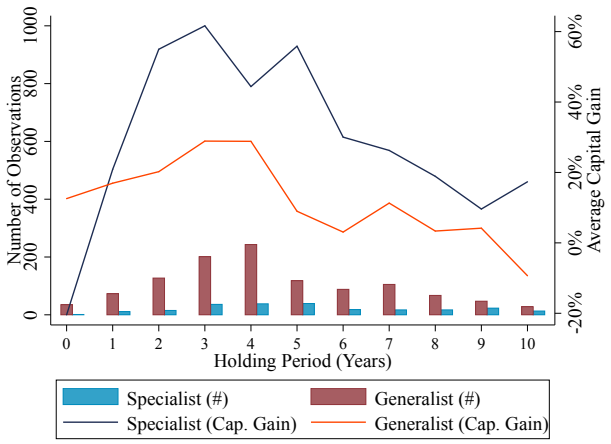
(B) Distribution of Service Scores

Figure 4. Breakdown of Holding Periods and Capital Gains by Investor Type

This figure depicts the distribution of holding periods (in years) and average capital gains by holding period in the hotel industry over the 2001–2019 period. Panel A presents data on the resales with a PE seller versus those without a PE seller. Panel B presents data on resales with PE sellers, comparing those with specialist versus generalist PE sellers. The hotel transactions data used to produce this figure are from RCA.



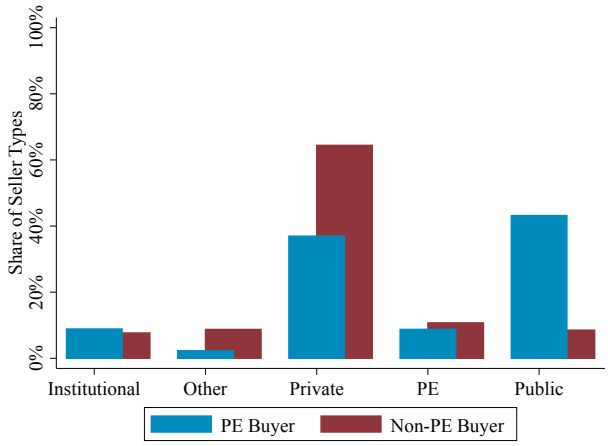
(A) PE Investors versus No PE Investors



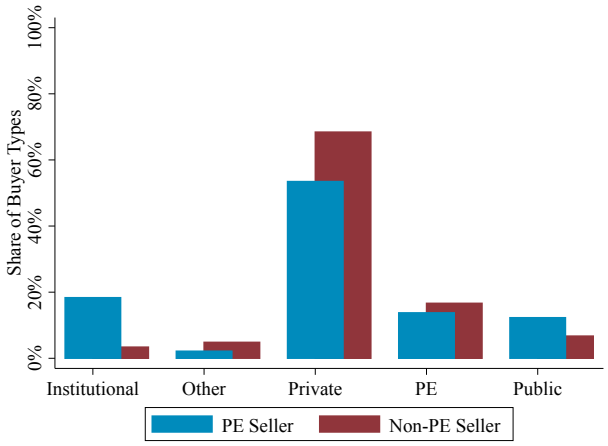
(B) PE Specialists versus PE Generalists

Figure 5. Distribution of Counterparties by Investor Type

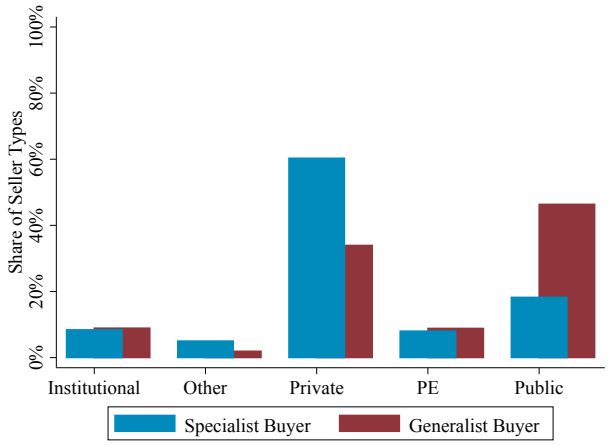
This figure depicts the distribution of counterparties by number of transactions for different investor types in the hotel industry over the 2001–2019 period. Panel A (B) presents the distribution of seller types (buyer types) for PE versus non-PE buyers (sellers). Panel C (D) presents the distribution of seller types (buyer types) for specialist PE versus generalist PE buyers (sellers). The hotel transactions data used to produce this figure are from RCA.



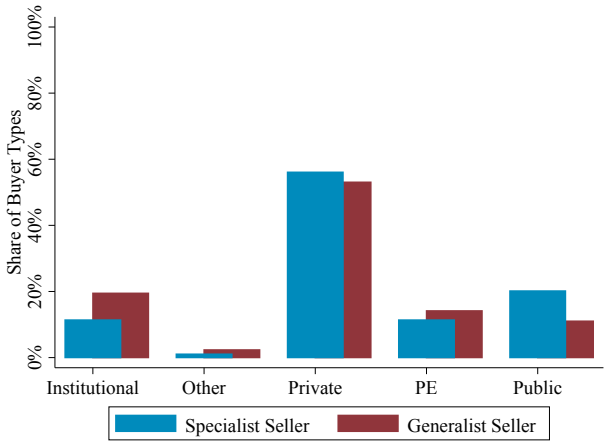
(A) Seller Types PE vs. Non-PE



(B) Buyer Types PE vs. Non-PE



(C) Seller Types PE Specialists vs. PE Generalists



(D) Buyer Types PE Specialists vs. PE Generalists

Table 1. Characteristics of PE Investors

This table presents cross-sectional descriptive statistics for specialist and generalist PE investors that acquired hotel properties in the U.S. over the 2001–2009 period, based on data from RCA. Year of First Acquisition is the year in which a given PE investor acquired their first hotel in our sample, as per the RCA transactions data. # Properties Acquired is the total number of properties acquired by a given PE investor in our sample over the study period. Acquisition Volume is the total volume of hotel acquisitions completed by a given PE investor in our sample over the study period in $ billion. Market Concentration (Brand Concentration) is a Herfindahl-Hirschman index of investment concentration computed by acquisition volumes over the different geographical markets (hotel brands, respectively) across which a given PE investor has acquired hotel properties over the sample period. The geographical market areas used in computing the variable Market Concentration are denoted "metro areas" in the RCA data. The hotel brands used in computing Brand Concentration are denoted "franchises" in the RCA data.

	PE Specialist			PE Generalist		
	N	Mean	SD	N	Mean	SD
Year of First Acquisition	23	2007	6	162	2009	5
# Properties Acquired	23	21	35	162	24	122
Acquisition Volume	23	0.71	0.98	162	0.89	3.99
Market Concentration	23	0.44	0.36	162	0.63	0.36
Brand Concentration	23	0.49	0.37	162	0.66	0.34

Table 2. Composition of Hotel Transactions Database

This table presents frequency statistics on hotel transactions in the U.S. over the 2001–2009 period, based on data from RCA. Panel A shows the distribution of hotel transactions by transaction type. Panel B shows a ranking of the top-10 investment destinations and hotel brands involved in the sample transactions. Panel C presents a ranking of the top-10 buyer types, as well as individual PE buyers and non-PE buyers. Panel D shows the distribution of transactions involving PE versus no PE buyers and sellers. Panel E shows the number of hotel transactions involving specialist PE firms as buyers and sellers, respectively.

Panel A. Distribution over Transaction Types

	N
Single	18,790
Portfolio	5,638
Entity-level	2,450
Total	26,878

Panel B. Top-10 Cities and Hotel Brands

City	N	Brand	N
Houston	360	<Independent hotel>	4,945
New York	323	Hampton Inn & Suites	1,078
Orlando	286	Courtyard by Marriott	968
San Antonio	246	Holiday Inn Express	960
Miami Beach	239	Residence Inn by Marriott	891
San Francisco	236	Motel 6	767
Phoenix	221	Holiday Inn	748
Las Vegas	208	Fairfield Inn by Marriott	744
San Diego	206	Quality Inn	726
Los Angeles	202	Comfort Inn	712

Panel C. Top-10 Buyer Types and Buyers

Buyer Type	N	PE Buyer	N	Non-PE Buyer	N
Developer/Owner/Operator	17,131	Blackstone	1,381	N/A	589
Equity Fund	4,027	Starwood Capital	513	Apple REIT	309
REIT	1,538	Goldman Sachs	404	China Life	195
Non Traded REIT	899	JER Partners	151	AccorInvest	170
Investment Manager	875	RLJ Development	147	Ashford Hospitality Trust	149
<unknown>	506	Five Mile Capital	119	Colony Capital (REIT)	149
REOC	446	Apollo Global RE	93	Hospitality Investors Trust	148
Insurance	244	Noble Investment Group	87	Kimco	135
Corporate	219	Dune RE Partners LP	77	AHIP REIT	129
High Net Worth	206	Cerberus	72	InvenTrust	126

Panel D. Presence of PE Buyer or Seller

	PE Seller	No PE Seller
PE Buyer	384	4,007
No PE Buyer	2,408	20,079

Panel E. Presence of PE Specialist Investors

	Buyer	Seller
PE Specialist	499	387

Table 3. Descriptive Statistics Transactions Data

This table presents descriptive statistics on hotel transactions in the U.S. over the 2001–2009 period, based on data from RCA. Panel A presents descriptive statistics on the hotel transactions involving PE buyers versus those involving no PE buyers. Panel B presents descriptive statistics on the PE hotel transactions involving PE specialists versus those involving PE generalists. The descriptive statistics cover the following variables: acquisition price (in $m.) and the price per room (in $th.); the cap rate (in %); an indicator that takes the value of one if a hotel was acquired as part of a portfolio transaction; an indicator that takes the value of one if the hotel was acquired by an international buyer; the number of rooms; the year built; and indicators that take the value of one if a hotel occupies a central business district (CBD) location and, respectively, if it is a full-service establishment (rather than a limited-service establishment).

Panel A. PE Buyers versus No PE Buyers

	PE Buyer			No PE Buyer		
	N	Mean	Median	N	Mean	Median
Price ($m.)	2,630	33.42	13.07	21,798	15.50	5.55
Price per Room ($th.)	2,630	138.41	100.05	21,748	99.92	64.75
Cap Rate (%)	353	7.89	7.95	2,865	8.63	8.69
Portfolio Transaction	2,630	0.63	1.00	21,798	0.18	0.00
International Buyer	2,630	0.04	0.00	21,798	0.06	0.00
Rooms	2,630	201	132	21,748	132	104
Year Built	2,482	1985	1991	21,296	1983	1988
CBD	2,630	0.16	0.00	21,796	0.09	0.00
Full Service	2,630	0.43	0.00	21,798	0.29	0.00

Panel B. PE Specialists versus PE Generalists

	PE Specialist			PE Generalist		
	N	Mean	Median	N	Mean	Median
Price ($m.)	496	34.36	20.57	2,134	33.20	12.00
Price per Room ($th.)	496	162.95	125.46	2,134	132.71	93.81
Cap Rate (%)	129	7.81	8.03	224	7.93	7.90
Portfolio Transaction	496	0.45	0.00	2,134	0.67	1.00
International Buyer	496	0.03	0.00	2,134	0.04	0.00
Rooms	496	214	163	2,134	198	128
Year Built	489	1984	1994	1,993	1985	1990
CBD	496	0.22	0.00	2,134	0.15	0.00
Full Service	496	0.63	1.00	2,134	0.39	0.00

Table 4. Descriptive Statistics Performance Data

This table presents descriptive statistics on the operating performance of U.S. hotels over the 2000–2018 period, based on data from CBRE. Panel A presents descriptive statistics on hotel performance measures across subject and control hotels. Panel B presents descriptive statistics on hotel performance measures across subject hotels owned by PE specialists versus those owned by PE generalists. Performance measures include the average daily rate, occupancy, and revenue per available room (the product of average daily rate and occupancy). Expense ratios include departmental, undistributed, non-operating, and fixed expenses. Profit ratios encompass departmental profit, gross operating profit, EBITDA, and net income. Expense and profit ratios are scaled by total hotel revenues. Continuous variables are winsorized at the 1^{st} and 99^{th} percentiles.

Panel A. Subject Hotels versus Control Hotels

	Subject Hotels			Control Hotels		
	N	Mean	Median	N	Mean	Median
Average Daily Rate	16,951	119.92	106.83	15,232	130.05	113.92
Occupancy	16,951	0.71	0.72	15,232	0.71	0.72
Revenue per Available Room	16,951	86.15	76.02	15,232	92.37	81.61
Departmental Expense Ratio	16,951	0.31	0.29	15,232	0.31	0.29
Undistributed Expense Ratio	16,951	0.28	0.28	15,232	0.27	0.27
Non-Operating Expense Ratio	16,951	0.13	0.09	15,232	0.12	0.09
Fixed Expense Ratio	16,951	0.09	0.00	15,232	0.08	0.00
Departmental Margin	16,951	0.69	0.71	15,232	0.69	0.71
GOP Margin	16,951	0.42	0.42	15,232	0.41	0.42
EBITDA Margin	16,951	0.29	0.31	15,232	0.29	0.31
Net Income Margin	16,951	0.20	0.22	15,232	0.21	0.23

Panel B. PE Specialists versus PE Generalists

	PE Specialist			PE Generalist		
	N	Mean	Median	N	Mean	Median
Average Daily Rate	1,684	127.84	116.64	12,233	112.70	101.52
Occupancy	1,684	0.72	0.73	12,233	0.71	0.71
Revenue per Available Room	1684	92.19	84.07	12,233	80.52	72.24
Departmental Expense Ratio	1,684	0.32	0.31	12,233	0.30	0.28
Undistributed Expense Ratio	1,684	0.28	0.28	12,233	0.28	0.28
Non-Operating Expense Ratio	1,684	0.15	0.11	12,233	0.13	0.09
Fixed Expense Ratio	1,684	0.07	0.00	12,233	0.09	0.03
Departmental Margin	1,684	0.68	0.69	12,233	0.70	0.72
GOP Margin	1,684	0.40	0.40	12,233	0.42	0.43
EBITDA Margin	1,684	0.25	0.28	12,233	0.30	0.32
Net Income Margin	1,684	0.18	0.19	12,233	0.20	0.23

Table 5. Hotel Operating Performance under Private Equity Ownership

This table reports output from Eq. (1). The dependent variables are top-line performance measures in Panel A, expense ratios in Panel B, and profit ratios in Panel C. PE_i^{Gen} (PE_i^{Spec}) is an indicator that takes the value of one for the hotels acquired by generalist (specialist) PE investors and zero for the hotels in the control group. $Post_{i,t}^{Gen}$ ($Post_{i,t}^{Spec}$) is an indicator that takes the value of one starting with the year in which a generalist (specialist) PE investor first acquires a subject hotel and zero before then. For control hotels, these variables equal one starting with the year in which a PE investor first acquires the matched subject hotel and zero before then. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on the interaction terms reported in the table. All regressions are estimated over the 2000–2018 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** p <0.01, ** p <0.05, * p <0.1.

Panel A. Top-Line Performance Measures

	Log ADR (1)	Occupancy (2)	Log RevPAR (3)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.006	-0.003	0.002
	(0.007)	(0.003)	(0.009)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	0.027*	-0.003	0.021
	(0.014)	(0.007)	(0.018)
Post Dummies	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes
F-statistic	1.97	0.00	0.96
Observations	16,369	16,369	16,369
R-squared	0.97	0.74	0.95

Panel B. Expense Ratios

	Departmental (1)	Undistributed (2)	Non-Operating (3)	Fixed (4)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	-0.008**	0.007	0.005	0.017
	(0.003)	(0.005)	(0.007)	(0.011)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.020***	-0.002	0.051**	-0.085***
	(0.005)	(0.007)	(0.020)	(0.024)
Post Dummies	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
F-statistic	3.63*	1.14	4.29**	15.05***
Observations	16,369	16,369	16,369	16,369
R-squared	0.90	0.79	0.52	0.73

Table 5. Continued

Panel C. Profit Ratios

	Departmental (1)	GOP (2)	EBITDA (3)	NI (4)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.008**	0.000	-0.002	-0.017
	(0.003)	(0.006)	(0.010)	(0.018)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	0.020***	0.023**	-0.029	0.055**
	(0.005)	(0.010)	(0.023)	(0.024)
Post Dummies	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
F-statistic	3.63*	4.25**	1.15	5.54**
Observations	16,369	16,369	16,369	16,369
R-squared	0.90	0.83	0.65	0.64

Table 6. Drivers of Changes in Hotel Operating Performance under Private Equity Ownership

This table reports output from Eq. (1). The dependent variables are labor expense ratios and employment in Panel A, undistributed expense ratios in Panel B, non-operating expense ratios in Panel C, and fixed charges in Panel D. PE_i^{Gen} (PE_i^{Spec}) is an indicator that takes the value of one for the hotels acquired by generalist (specialist) PE investors and zero for the hotels in the control group. $Post_{i,t}^{Gen}$ ($Post_{i,t}^{Spec}$) is an indicator that takes the value of one starting with the year in which a generalist (specialist) PE investor first acquires a subject hotel and zero before then. For control hotels, these variables equal one starting with the year in which a PE investor first acquires the matched subject hotel and zero before then. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on the interaction terms reported in the table. All regressions are estimated over the 2000–2018 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** p <0.01, ** p <0.05, * p <0.1.

Panel A. Labor Expenses and Employment

	Total (1)	Rooms (2)	F&B (3)	Other (4)	Employment (5)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	-0.004*	-0.003	0.000	0.000	-0.038
	(0.002)	(0.002)	(0.001)	(0.000)	(0.084)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.015***	-0.012***	-0.003	0.000	-0.079
	(0.005)	(0.004)	(0.003)	(0.001)	(0.153)
Post Dummies	Yes	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
F-statistic	5.43**	5.11**	0.80	0.00	0.07
Observations	15,230	15,230	15,230	15,230	4,269
R-squared	0.88	0.83	0.97	0.80	0.88

Panel B. Undistributed Expenses

	A&G (1)	IT (2)	Sales (3)	Maint. (4)	Util. (5)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.001	0.000	0.008**	-0.002**	0.000
	(0.002)	0.000	(0.004)	(0.001)	(0.001)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.004*	0.002**	0.004	-0.003**	0.000
	(0.003)	(0.001)	(0.005)	(0.001)	(0.001)
Post Dummies	Yes	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
F-statistic	3.53*	4.17**	0.45	1.33	0.08
Observations	16,369	16,369	16,369	16,369	16,369
R-squared	0.67	0.67	0.87	0.71	0.83

Table 6. Continued

Panel C. Non-Operating Expenses

	Mgt. Fee (1)	Prop. Tax (2)	Insur. (3)	Rent (4)	Other (5)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	-0.004***	-0.001	-0.001	0.002	0.003
	(0.001)	(0.001)	(0.001)	(0.007)	(0.002)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.009***	-0.010**	0.000	0.074***	-0.003***
	(0.003)	(0.004)	(0.001)	(0.024)	(0.001)
Post Dummies	Yes	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
F-statistic	3.43*	4.42**	0.22	8.34***	9.18***
Observations	16,369	16,369	16,369	16,369	16,369
R-squared	0.75	0.70	0.72	0.55	0.41

Panel D. Fixed Charges

	Interest (1)	Amort. & Dep. (2)	Inc. Tax (3)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.010***	0.010	0.000**
	(0.004)	(0.008)	(0.000)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.033***	-0.051***	0.000
	(0.012)	(0.017)	(0.000)
Post Dummies	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes
F-statistic	10.83***	13.88***	0.35
Observations	16,369	16,369	16,369
R-squared	0.72	0.75	0.37

Table 7. Guest Satisfaction under Private Equity Ownership

This table reports output from Eq. (1). The dependent variables are hotels' overall guest satisfaction scores in column 1, guest satisfaction scores for service quality in column 2, and the corresponding scores for cleanliness and sleep quality in columns 3 and 4, respectively. PE_i^{Gen} (PE_i^{Spec}) is an indicator that takes the value of one for the hotels acquired by generalist (specialist) PE investors and zero for the hotels in the control group. $Post_{i,t}^{Gen}$ ($Post_{i,t}^{Spec}$) is an indicator that takes the value of one starting with the year in which a generalist (specialist) PE investor first acquires a subject hotel and zero before then. For control hotels, these variables equal one starting with the year in which a PE investor first acquires the matched subject hotel and zero before then. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on the interaction terms reported in the table. All regressions are estimated over the 2000–2018 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** p <0.01, ** p <0.05, * p <0.1.

	Overall (1)	Service (2)	Cleanliness (3)	Sleep Quality (4)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.018	-0.013	0.018	0.032
	(0.028)	(0.028)	(0.026)	(0.029)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.059	-0.156***	-0.031	-0.038
	(0.061)	(0.056)	(0.086)	(0.114)
Post Dummies	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
F-statistic	1.66	5.56**	0.34	0.32
Observations	11,907	11,788	11,768	8,504
R-squared	0.50	0.45	0.48	0.44

Table 8. Long-Term Growth Initiatives under Private Equity Ownership

This table reports output from Eq. (1). The dependent variables are measures of capital expenditures in Panel A and changes in hotel management companies in Panel B. PE_i^{Gen} (PE_i^{Spec}) is an indicator that takes the value of one for the hotels acquired by generalist (specialist) PE investors and zero for the hotels in the control group. $Post_{i,t}^{Gen}$ ($Post_{i,t}^{Spec}$) is an indicator that takes the value of one starting with the year in which a generalist (specialist) PE investor first acquires a subject hotel and zero before then. For control hotels, these variables equal one starting with the year in which a PE investor first acquires the matched subject hotel and zero before then. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on the interaction terms reported in the table. All regressions are estimated over the 2000–2018 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** p <0.01, ** p <0.05, * p <0.1.

Panel A. Capital Expenditures

	Additions (1)	Alterations (2)	Conversions (3)	New Construct. (4)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.001	-0.005	0.001	0.000
	(0.001)	(0.005)	0.000	(0.008)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	-0.007	0.040*	-0.005	-0.001
	(0.007)	(0.022)	(0.005)	(0.018)
Post Dummies	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
F-statistic	1.38	4.02*	1.88	0.00
Observations	11,582	11,582	11,582	11,582
R-squared	0.13	0.12	0.13	0.11

Panel B. Change in Management Companies

	Logit (1)	LPM (2)
$PE_i^{Gen} \times Post_{i,t}^{Gen}$	0.745***	0.026***
	(0.288)	(0.009)
$PE_i^{Spec} \times Post_{i,t}^{Spec}$	0.909***	0.023**
	(0.318)	(0.011)
Post Dummies	Yes	Yes
Hotel Fixed Effects	No	Yes
Region × Year Fixed Effects	No	Yes
F-statistic	0.15	0.03
Observations	16,378	16,369
R-squared	0.06	0.20

Table 9. Drivers of Private Equity Capital Gains

This table reports output from Eq. (2), estimated over the repeat-sales transactions in our sample. The dependent variable is capital gains, measured as the difference between the log acquisition price per room and the subsequent log disposition price per room for a given hotel. $PESeller_{i,t}^{Gen}$ ($PE\ Seller_{i,t}^{Spec}$) is an indicator that takes the value of one if the seller in a given transaction is a generalist (specialist) PE investor, and zero otherwise. The regressions include the following control variables: *Portfolio Sale* is an indicator that takes the value of one if a hotel was sold in a portfolio deal; *Prior Portfolio Sale* is an indicator that takes the value of one if the hotel was acquired in a portfolio deal; *International Buyer* is an indicator that takes the value of one if the buyer in the repeat sale is an international investor; *Rooms* is the log number of rooms of the hotel traded in a given transaction. *Year Built* is a hotel's construction year; *CBD* is an indicator that takes the value of one if a given hotel is located in the central business district of its local market, and zero otherwise; *Full-Service* is an indicator that takes the value of one if a given hotel is a full-service hotel, and zero otherwise (if it is a limited-service hotel). Fixed effects for the length of the holding period (in years) in a given repeat-sales transaction, different location-level fixed effects (namely, region and zip code), and their interaction terms with the transaction years are included as indicated. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on $PESeller_{i,t}^{Gen}$ and $PESeller_{i,t}^{Spec}$ reported in the table. All regressions are estimated over the 2001–2019 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

	(1)	(2)	(3)	(4)	(5)	(6)
$PESeller_{i,t}^{Gen}$	0.110**	0.087**	0.020	0.029	-0.030	-0.062
	(0.043)	(0.042)	(0.031)	(0.030)	(0.038)	(0.052)
$PESeller_{i,t}^{Spec}$	0.278***	0.287***	0.214***	0.208***	0.224***	0.150
	(0.037)	(0.042)	(0.044)	(0.043)	(0.046)	(0.098)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Holding Period FE	No	Yes	No	No	No	No
Holding Period x Year FE	No	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	No	No	No
Region × Year FE	No	No	No	Yes	No	No
Zip FE	No	No	No	No	Yes	No
Zip × Year FE	No	No	No	No	No	Yes
F-statistic	10.38***	14.82***	21.80***	17.80***	35.37***	4.80**
Observations	7,989	7,989	7,986	7,982	6,730	2,394
R-squared	0.04	0.08	0.27	0.30	0.46	0.68

Table 10. The Role of Counterparties in Driving Private Equity Capital Gains

This table reports output from Eq. (2), estimated over the repeat-sales transactions in our sample. The dependent variable is capital gains, measured as the difference between the log acquisition price per room and the subsequent log disposition price per room for a given hotel. $PESeller_{i,t}^{Gen}$ ($PE\ Seller_{i,t}^{Spec}$) is an indicator that takes the value of one if the seller in a given transaction is a generalist (specialist) PE investor, and zero otherwise. Column 1 reproduces the estimation results reported in column 1 of Table 9 for reference. Column 2 additionally controls for buyer type fixed effects, capturing the investor type of the buyer in a given repeat-sales transaction. Column 3 additionally controls for original seller type fixed effects, capturing the type of investor from which the seller in a given repeat-sales transaction originally acquired the property. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on $PESeller_{i,t}^{Gen}$ and $PESeller_{i,t}^{Spec}$ reported in the table. All regressions are estimated over the 2001–2019 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

	(1)	(2)	(3)
$PESeller^{Gen}$	0.110**	0.106**	0.073**
	(0.043)	(0.045)	(0.034)
$PESeller^{Spec}$	0.278***	0.266***	0.261***
	(0.037)	(0.038)	(0.037)
Control Variables	Yes	Yes	Yes
Buyer Type FE	No	Yes	Yes
Original Seller Type FE	No	No	Yes
Holding Period FE	No	No	No
Holding Period x Year FE	No	No	No
Region FE	Yes	Yes	Yes
Region × Year FE	No	No	No
Zip FE	No	No	No
Zip × Year FE	No	No	No
F-statistic	10.38***	8.96***	15.28***
Observations	7,989	7,989	7,989
R-squared	0.04	0.05	0.08

Table 11. Private Equity Acquisition Financing

This table reports output from Eq. (3). The dependent variable is the hotel mortgage interest rate in column (1), the loan term in column (2), the debt-service coverage ratio (DSCR, computed as the annual hotel EBITDA divided by total debt service) in column (3), and the loan-to-value ratio (LTV) at underwriting in column (4). $PEBuyer_{i,t}^{Gen}$ ($PEBuyer_{i,t}^{Spec}$) is an indicator that takes the value of one if the borrower in a given financing transaction was a generalist (specialist) PE investor, and zero otherwise. *Price per Room* is the log price per room of the hotel financed in a given transaction. Hotel fixed effects, lender fixed effects, and region × year fixed effects are included as indicated. F-statistic refers to the results from a hypothesis test for the equality of the coefficients on $PEBuyer_{i,t}^{Gen}$ and $PEBuyer_{i,t}^{Spec}$ reported in the table. All regressions are estimated over the 2001–2019 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

	Interest Rate (1)	Loan Term (2)	DSCR (3)	LTV (4)
$PEBuyer_{i,t}^{Gen}$	-0.003**	-0.092	0.332***	0.002
	(0.001)	(0.071)	(0.126)	(0.015)
$PEBuyer_{i,t}^{Spec}$	0.000	0.080	-0.039	-0.014
	(0.001)	(0.112)	(0.132)	(0.018)
Price per Room	0.000	0.042	0.173*	-0.032***
	(0.001)	(0.047)	(0.090)	(0.011)
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
F-statistic	3.81*	1.68	3.75*	0.35
Observations	3,689	7,647	4,574	5,800
R-squared	0.92	0.83	0.86	0.78

Appendix A Hotel Accounting under USALI

Table A.1. Summary Hotel Profit and Loss Statement Following USALI

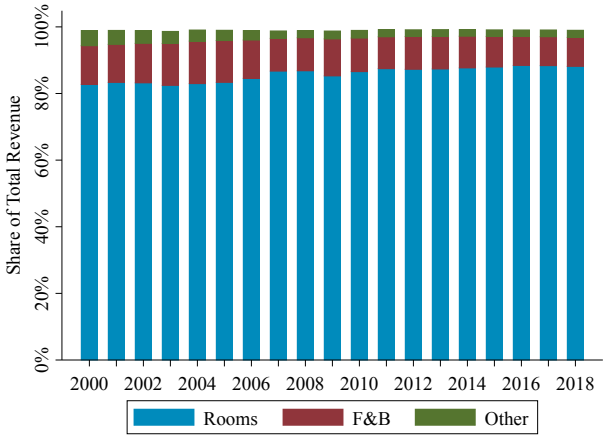
This table presents the structure of a typical hotel profit and loss statement following the Uniform System of Accounts for the Lodging Industry (USALI). The column on the left shows the individual revenue and expense items in the different hotel operating departments, the overhead expenses associated with the operation of the hotel that cannot be assigned to any of the individual operating departments (undistributed expenses), the expenses associated with the ownership of the real estate (non-operating expenses), and the expenses associated with financing and taxation of the hotel (fixed charges). The column on the right shows the calculation of key hotel profit measures by subtracting the various expense components from total hotel revenues (total departmental income).

	Rooms Revenue		
+	Food & Beverage Revenue		
+	Other Operating Revenue		
			Total Departmental Revenues
	Rooms Expense		
+	Food & Beverage Expense		
+	Other Operating Expense		
		−	Total Departmental Expenses
		=	**Total Departmental Income**
	A&G Expense		
+	IT Expense		
+	Marketing Expense		
+	Maintenance Expense		
+	Utility Expense		
		−	Total Undistributed Expenses
		=	**Gross Operating Profit**
	Management Fee		
+	Property Tax		
+	Insurance		
+	Rent Expense		
+	Other Non-Operating Expenses		
		−	Total Non-Operating Expenses
		=	**EBITDA**
	Interest Expense		
+	Amortization & Depreciation		
+	Income Taxes		
		−	Total Fixed Charges
		=	**Net Income**

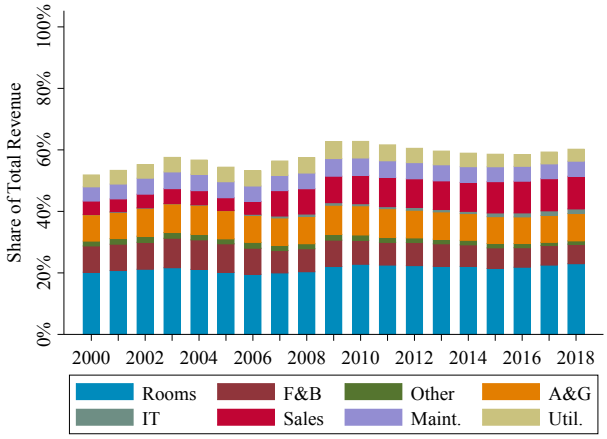
Appendix B Key Hotel Revenue and Expense Ratios under USALI

Figure B.1. Breakdown of Hotel Revenues and Expenses

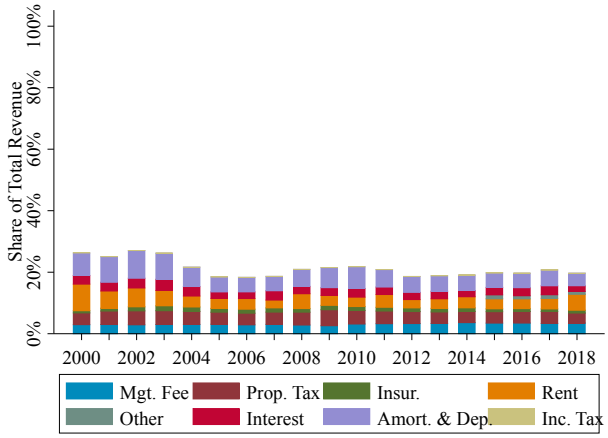
This figure depicts the annual decomposition of hotel revenues and expenses over the 2000–2018 period in terms of departmental revenues (Panel A), departmental and undistributed expenses (Panel B), and non-operating expenses and fixed charges (Panel C). All annual revenue and expense items shown are scaled by contemporaneous hotel total revenues. The hotel performance data used to produce this figure are from CBRE.



(A) Departmental Revenues



(B) Departmental and Undistributed Expenses



(C) Non-Operating Expenses and Fixed Charges

Appendix C Effects of Private Equity Ownership on Hotel Performance by Year

The evidence presented in Section 3 shows some improvements in hotel operating performance following specialist PE investments, and more limited improvements following generalist PE investments. However, it is possible that (generalist) PE investors implement gradual changes to hotel operations during the course of their holding period, the benefits of which affect performance slowly over time. To investigate this possibility, we estimate the following regression specification:

$$y_{i,t} = \alpha + \sum_{k=0}^{K} \beta_k PE_i^{Gen} \times Post_{i,t}^{Gen,k} + \sum_{k=0}^{K} \gamma_k PE_i^{Spec} \times Post_{i,t}^{Spec,k} + \sum_{k=0}^{K} \delta Post_{i,t}^{Gen,k} + \sum_{k=0}^{K} \eta Post_{i,t}^{Spec,k} + \phi_i + \theta_{l,t} + \epsilon_{i,t} \tag{C.1}$$

where β_k (γ_k) denotes the coefficient of interest on the interaction term between PE_i^{Gen} (PE_i^{Spec}), an indicator that takes the value of one for hotels in the subject group acquired by generalist (specialist) PE investors, and the generalist (specialist) PE investment indicator $Post_{i,t}^{Gen,k}$ ($Post_{i,t}^{Spec,k}$) in year $k = 0, 1, ..., 5$. We estimate Eq. (C.1) for the five years leading up to and the five years following generalist (specialist) PE investments in their subject hotels. The specification in Eq. (C.1) thus allows us to identify the impact of generalist (specialist) PE investments on hotel performance measures in the year a given subject hotel received generalist (specialist) PE funding ($k = 0$) and in each of the subsequent five years ($k = 1, 2, ..., 5$) by comparison to the performance outcomes achieved on average over the five years prior to that hotel receiving PE funding. The values of $Post_{i,t}^{Gen,k}$ ($Post_{i,t}^{Spec,k}$) for the control hotels are again determined by the timing of PE investments in the characteristics-matched subject hotels. The remaining variables and notation are as in Eq. (1).

We summarize the results of estimating Eq. (C.1) for the sample hotels graphically. Figures C.1 through C.3 depict the annual coefficient estimates for β^k and γ^k, which measure the year-specific impacts of generalist (specialist) PE investments on hotel performance measures from the year of PE investment (denoted as year 0) up to five years following that initial investment.

[Insert Figures C.1, C.2, and C.3 about here.]

Figure C.1 presents the results for hotel top-line performance measures. The graphs show that the annual effects of specialist and generalist PE ownership on ADR, occupancy and RevPAR are statistically insignificant and economically small in all years of PE ownership. These results confirm the patterns we document in Section 3 of the paper.

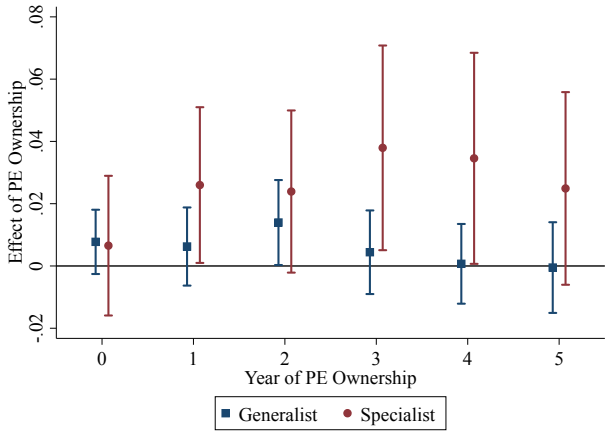
In Figure C.2, we summarize the estimation results from Eq. (C.1) for hotel expense ratios. Panel A shows that the positive impact of specialist PE ownership on departmental expense ratios is gradual and increasing over time, starting in year one of their ownership. By contrast, the effect of generalist PE ownership is smaller and starts to matter later (from year two of their ownership). Panels B and C of Figure C.2 depict the annual impacts of generalist and specialist PE investments on hotel undistributed expenses and non-operating expenses. The figures show some volatility in the annual effects of PE ownership on those measures of hotel operating efficiency but, consistent with the evidence presented in Section 3, few systematic patterns or statistically significant effects emerge. Panel D shows a distinctive difference between the fixed expense ratios of specialist and generalist PE-owned hotels. The former experience lower fixed expenses starting from the year these businesses receive PE backing. This initial effect persists through the five years of PE ownership included in this analysis. By contrast, the fixed expenses for hotels under generalist PE ownership are nearly indistinguishable from those experienced by hotels with non-PE owners.

Figure C.3 replicates the graphical depiction of the regression results from Eq. (C.1) for hotel profit ratios. Panel A shows the resulting immediate and persistent increase in departmental profit ratios starting from year one of specialist PE ownership in the subject hotels. This result is consistent with our earlier finding that specialist PE ownership has a swift and lasting positive effect on departmental expenses. Panel B of Figure C.3 again suggests that specialist PE-owned hotels continue to benefit from this lead over non-PE owner hotels and achieve increasingly higher gross operating profit margins compared to hotels owned by non-PE investors. Panel C (EBITDA) confirms our earlier finding that PE ownership is of limited consequence for EBITDA margins. However, Panel D (net income) shows an increasingly positive effect of specialist PE ownership on bottom-line profit ratios over time.

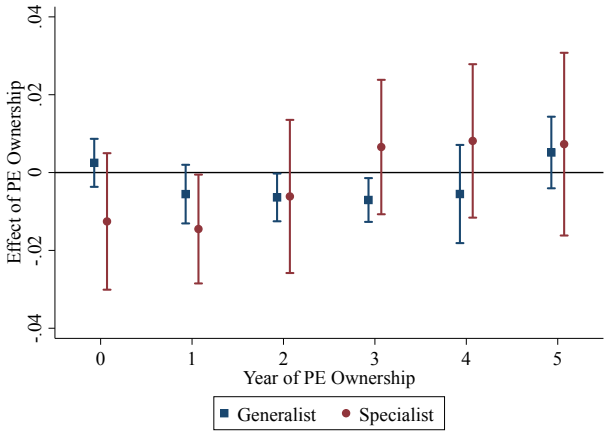
In sum, the results reported in Figures C.1, C.2, and C.3 corroborate the central inference of our analysis that specialist PE-owned hotels experience significant improvements in operating efficiency and profitability over time.

Figure C.1. Timing Effects of Private Equity Investment on Top-Line Performance

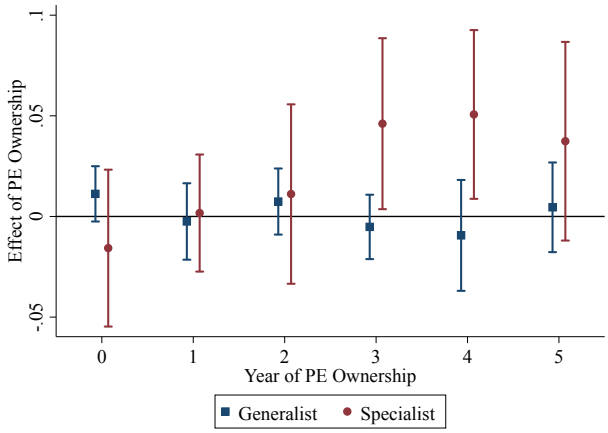
This figure depicts the annual marginal effects of specialist and generalist PE ownership on the top-line performance of the subject hotels relative to their characteristic-matched control hotels, with 90% confidence intervals drawn around the point estimates. Panel (A) shows the effects on the natural logarithm of the annual average daily rate (ADR). Panel (B) shows the effects on the annual average occupancy rate. Panel (C) shows the effects on the natural logarithm of the annual average revenue per available room (RevPAR, computed as ADR × occupancy). The annual marginal effects shown are derived from the regression specification in Eq. (C.1), estimated over the five years leading up to and the five years following PE investments in the subject hotels. Thus, each estimated marginal effect captures the impact of specialist and generalist PE investments on hotel performance in a given year of PE ownership, compared to the average performance in the five years leading up to the PE investments in the subject hotels. The time-series of the performance data for the characteristic-matched control hotels assigned to each of the subject hotels are measured on the same timeline, defined by the PE investments in the subject hotels. The data used to produce this figure are from CBRE and RCA, respectively.



(A) Average Daily Rate



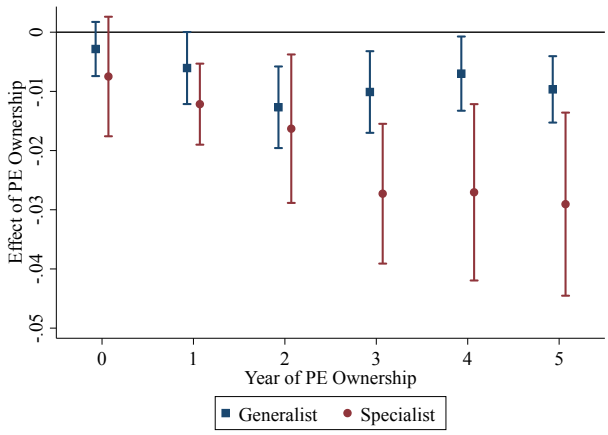
(B) Occupancy



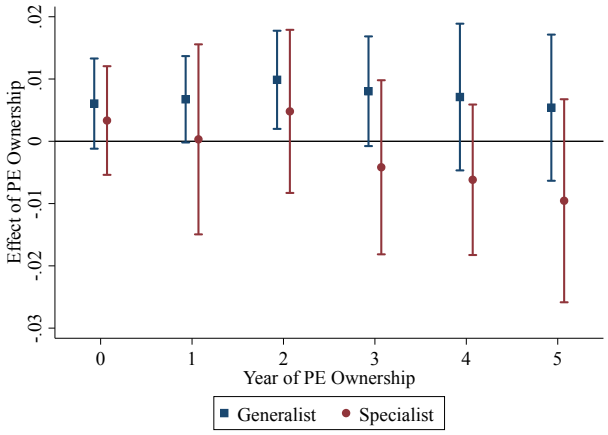
(C) RevPAR

Figure C.2. Timing Effects of Private Equity Investment on Expense Ratios

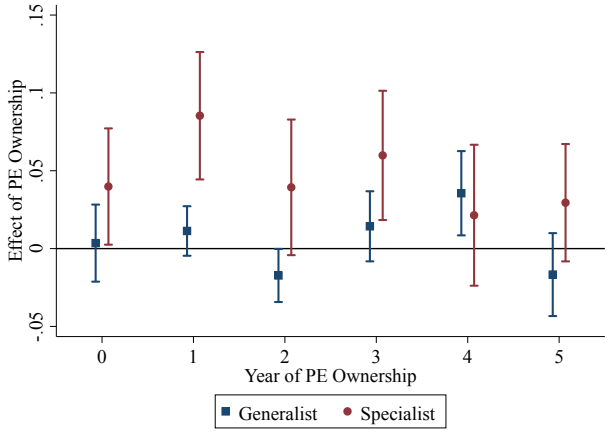
This figure depicts the annual marginal effects of specialist and generalist PE ownership on the expense ratios of the subject hotels relative to their characteristic-matched control hotels, with 90% confidence intervals drawn around the point estimates. Panel (A) shows the effects on the ratio of departmental expenses to total hotel revenues. Panel (B) shows the effects on the ratio of undistributed expenses to total hotel revenues. Panel (C) shows the effects on the ratio of non-operating expenses to total hotel revenues. Panel (D) shows the effects on the ratio of fixed expenses to total hotel revenues. The annual marginal effects shown are derived from the regression specification in Eq. (C.1), estimated over the five years leading up to and the five years following PE investments in the subject hotels. Thus, each estimated marginal effect captures the impact of specialist and generalist PE investments on hotel performance in a given year of PE ownership, compared to the average performance in the five years leading up to the PE investments in the subject hotels. The time-series of the performance data for the characteristic-matched control hotels assigned to each of the subject hotels are measured on the same timeline, defined by the PE investments in the subject hotels. The data used to produce this figure are from CBRE and RCA, respectively.



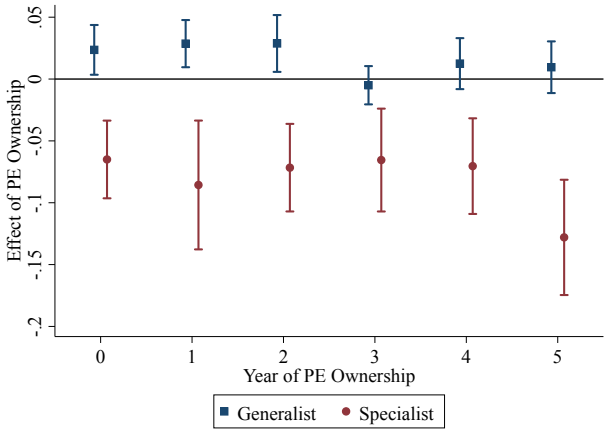
(A) Departmental Expenses



(B) Undistributed Expenses



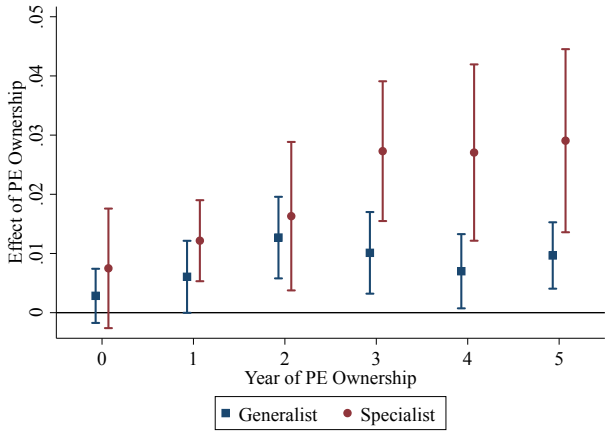
(C) Non-Operating Expenses



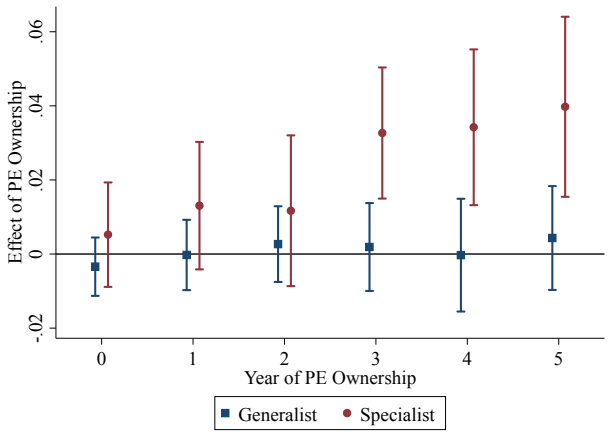
(D) Fixed Expenses

Figure C.3. Timing Effects of Private Equity Investment on Profit Ratios

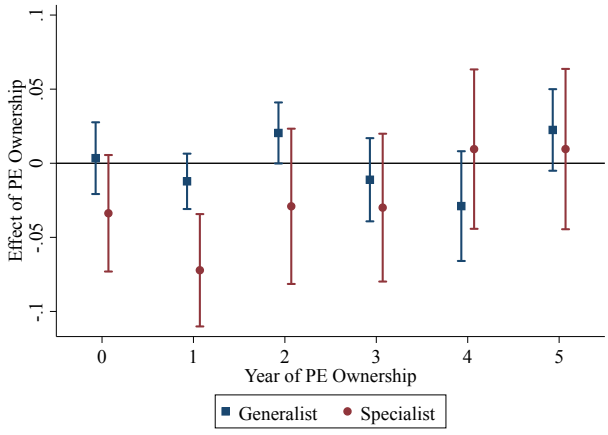
This figure depicts the annual marginal effects of specialist and generalist PE ownership on the profit ratios of the subject hotels relative to their characteristic-matched control hotels, with 90% confidence intervals drawn around the point estimates. Panel (A) shows the effects on the ratio of departmental profits to total hotel revenues. Panel (B) shows the effects on the ratio of gross operating profits to total hotel revenues. Panel (C) shows the effects on the ratio of EBITDA to total hotel revenues. Panel (D) shows the effects on the ratio of net income to total hotel revenues. The annual marginal effects shown are derived from the regression specification in Eq. (C.1), estimated over the five years leading up to and the five years following PE investments in the subject hotels. Thus, each estimated marginal effect captures the impact of specialist and generalist PE investments on hotel performance in a given year of PE ownership, compared to the average performance in the five years leading up to the PE investments in the subject hotels. The time-series of the performance data for the characteristic-matched control hotels assigned to each of the subject hotels are measured on the same timeline, defined by the PE investments in the subject hotels. The data used to produce this figure are from CBRE and RCA, respectively.



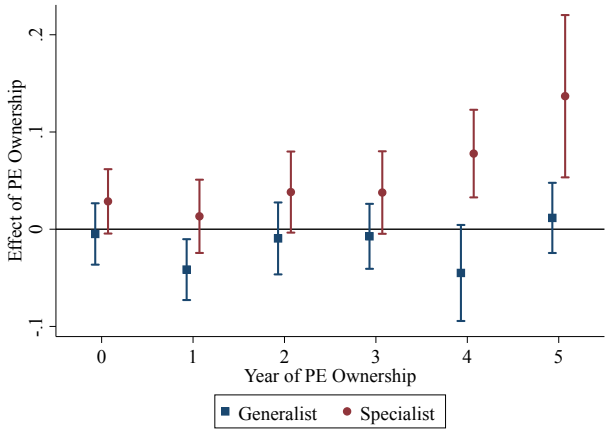
(A) Departmental Profit



(B) Gross Operating Profit



(C) EBITDA



(D) Net Income

Appendix D Hotel Operating Performance after Private Equity Ownership

We analyze hotel operating performance after PE investors sell their assets to new owners in an econometric framework similar to Eq. (1):

$$y_{i,t} = \alpha + \beta PE_i \times PostPEExit_{i,t} + \gamma PostPEExit_{i,t} + \delta_i + \theta_{l,t} + \epsilon_{i,t} \tag{D.1}$$

where $y_{i,t}$ is a performance outcome for hotel i in year t. α is a constant term. PE_i is an indicator that takes the value of one for hotels in the subject group and zero for hotels in the control group. $PostPEExit_{i,t}$ equals one starting with the year in which a PE owner sells a subject hotel and zero before then. For control hotels, $PostPEExit_{i,t}$ equals one starting with the year in which a PE owner sells their matched subject hotels and zero before then. The remaining variables and notation are as in Eq. (1). We estimate Eq. (D.1) starting from the year PE investors acquire their subject hotels until the end of the sample period. As a result, this estimation compares the performance of subject and control hotels after PE investors exit their subject hotels to the performance of those hotels under PE ownership. Table D.1 presents the results.

[Insert Table D.1 about here.]

The estimates reported in Panel A of Table D.1 show that former PE hotels do not generate higher top-line performance once they operate under new (non-PE) ownership. There appears to be a small decline in non-operating expenses after PE investors exit their subject hotels—and an associated increase in higher EBITDA and net income margins–but the effects are barely statistically significant, and in any case do not point to any *operational* improvements that can be attributed to the former PE owner.

Table D.1. Hotel Operating Performance after Private Equity Exit

This table reports output from Eq. (D.1). The dependent variables are top-line performance measures in Panel A, expense ratios in Panel B, and profit ratios in Panel C. *PE* is an indicator that takes the value of one for hotels in the subject group and zero for hotels in the control group. *Post PE Exit* is an indicator that takes the value of one starting with the year in which a PE investor exits a previously acquired subject hotel and zero before then. For control hotels, *Post PE Exit* equals one starting with the year in which a PE investor exits their matched subject hotels and zero before then. Hotel and region × year fixed effects are included as indicated. All regressions are estimated over the 2000–2018 period. Standard errors are clustered by hotel brand. Statistical significance is indicated as follows: *** p <0.01, ** p <0.05, * p <0.1.

Panel A. Top-Line Performance Measures

	Log ADR (1)	Occupancy (2)	Log RevPAR (3)
PE × *Post PE Exit*	0.001	-0.001	-0.001
	(0.013)	(0.006)	(0.015)
Post PE Exit	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes
Observations	7,020	7,020	7,020
R-squared	0.97	0.75	0.95

Panel B. Expense Ratios

	Departmental (1)	Undistributed (2)	Non-Operating (3)	Fixed (4)
PE × *Post PE Exit*	0.006	0.000	-0.034*	-0.009
	(0.005)	(0.004)	(0.019)	(0.008)
Post PE Exit	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	7,020	7,020	7,020	7,020
R-squared	0.91	0.82	0.52	0.67

Panel C. Profit Ratios

	Departmental (1)	GOP (2)	EBITDA (3)	NI (4)
PE × *Post PE Exit*	-0.006	-0.005	0.030*	0.039*
	(0.005)	(0.007)	(0.018)	(0.020)
Post PE Exit	Yes	Yes	Yes	Yes
Hotel Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	7,020	7,020	7,020	7,020
R-squared	0.91	0.83	0.66	0.70