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The impact of exchange listing on corporate governance: Evidence from direct listings

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Abstract

We use prior direct listings by public nonlisted REITs (PNLRs) to explore the impact of exchange membership on corporate governance. We study companies with public, but nonlisted shares in a unique setting where the influence of listing is distinct from the confounding effect of capital raising. Evidence suggests younger, more profitable companies with stronger governance and professional management are more likely to directly list. Institutional ownership increases after listing and these changes are not due to future capital raising. Moreover, internal corporate governance improves beyond the exchange's requirements, especially for those companies with greater stock liquidity and more institutional ownership.

KEYWORDS
bonding hypothesis, corporate governance, exchange listing, REIT

JEL CLASSIFICATION
G23, G32, G34

1 | INTRODUCTION

On April 3, 2018, the Swedish music company Spotify AB listed its shares on the New York Stock Exchange (NYSE) under the ticker symbol "SPOT." With an initial valuation of $26.5 billion, Spotify was one of the largest offerings at the NYSE since Facebook (Farrell & Osipovich, 2018). While seemingly just another tech Initial Public Offering (IPO), this listing was a watershed event. It did not involve an underwriter nor raise any capital. Instead, the company simply listed its existing stock directly on the exchange. The so-called "direct listing" saved Spotify millions of dollars in

underwriter fees and underpricing, heightened their prestige, and increased liquidity for their stockholders.[1] Given Spotify's success, Slack Technologies followed up with its own direct listing in 2019 with strong investor support (Feiner, 2019). Several other firms have avoided using Wall Street investment banks in the last three years with other big-name startups reportedly following suit (Ritter, 2022). However, some legal scholars fear direct listings bring risky companies into public markets without underwriter certification (Horton, 2019).

Industrial direct listings are still in their infancy, but there is another market where a similar practice already takes place: the public listings of nonlisted Real Estate Investment Trusts (public nonlisted REITs or PNLRs[2]). As in other industries, there are public REITs that trade on formal exchanges and private REITs whose ownership is exchanged via arranged transactions. PNLRs are a hybrid of the two. These REITs sell shares to public investors without a secondary market, so PNLR shareholders have little liquidity. As with some tech startups, research shows that PNLRs are risky, poorly governed, and notorious for taking advantage of unsophisticated investors (Sahin, 2012; Wiley, 2017).

In this paper, we study the impact of exchange listings upon corporate governance by examining these "direct listing REITs." They allow us to exploit a larger sample of firms that engage in this new practice over a longer time series and, thus, illuminate the impacts of a novel method for going public. By analyzing the motivations and governance consequences for direct listing REITs, we contribute to the literature by documenting the influence public markets have on board structure, managerial incentives, and institutional ownership.

Prior literature suggests that managers indicate their quality through a myriad of corporate policy choices.[3] In addition, we explore the signaling value of public listings for managers who willingly bind themselves to exchange requirements. Most of the limited extant literature on PNLRs gives reason to question whether they are even viable investments (Husson et al., 2012). Shares of such firms are typically sold to retail investors through brokers charging high commissions, sometimes approaching 15% (Corgel & Gibson, 2008), and come with back-end loads and managerial participation in residual cash flows. Because the shares are not actively traded, their prices are noisy or unobservable with little institutional involvement. Thus, monitoring is more difficult and the potential for managerial rent extraction is exacerbated (Henderson et al., 2016). Ostensibly, not all PNLRs fit this profile. Because it is not subject to myopia-inducing daily stock volatility, the PNLR business model is well-suited for the equity capitalization of multiple smaller properties when overseen by reputable management teams. However, given their public perception, high-quality management teams suffer a lemons problem (Akerlof, 1970). They are pooled with numerous opportunists and are unable to distinguish themselves as legitimate enterprises.

We argue the listing process presents the opportunity to observe a separating equilibrium for higher-quality PNLR managers and, by extension, those at private firms in general. Public exchanges have requirements constraining the corporate governance of their members. Listing managers credibly commit their firms to a compliant governance structure that is difficult to reverse. These companies legally and reputationally bond to the exchange's requirements and the oversight inherent in that environment (Burns et al., 2007; Coffee, 2002). Opportunistic PNLR managers may not wish to conform to these guidelines because they make it difficult to expropriate unsophisticated investors. Thus, the listing requirements could offer a signal of managerial quality that is too costly to imitate for lesser management teams.

Exchange membership can improve governance through other nonregulatory channels. Public listing directly boosts stock liquidity (Christie & Huang, 1994; Edelman & Baker, 1990) while increasing its visibility and legitimacy (Baker et al., 2002), thereby heightening the company's and management's reputation. Listed companies can offer equity compensation that might not otherwise be palatable to managers without an active secondary market to realize

[1] Spotify did engage Goldman Sachs Group Inc., Morgan Stanley and Allen & Co. as advisors for the offering. The $36 million they paid them in total fees for their services is about one-third of what is typically paid to underwriters of similarly sized offerings (Farrell & Osipovich, 2018).

[2] https://www.reit.com/what-reit/types-reits/guide-public-non-listed-reits-pnlrs

[3] Signals specifically studied in the REIT literature include debt maturity (Howe & Shilling, 1988; Pavlov et al., 2018), dividend policy (Wang et al., 1993), insider ownership (Damodaran & Liu, 1993), loan commitments (Elayan et al., 2004), secured financing (Giacomini et al.,, 2017), and stock repurchases (Brau & Holmes, 2006).

gains. In addition to increasing the labor market incentives for existing managers, the reputational (and perhaps more lucrative pecuniary) enhancements plausibly make it easier to recruit talented officers and expert directors. Finally, because activist investors prefer liquid stocks (Edmans et al., 2013; Maug, 1998), exchange membership could increase scrutiny by a more sophisticated group of capital market participants. Thus, direct listings may elicit governance improvements beyond those required by regulators.

Using a sample of 663 firm-year observations of 143 unique PNLRs from 2002 to 2019, our results suggest that listing distinguishes the well-managed PNLR firms from the poorly managed, especially for companies exhibiting J-curve style payoffs. Examining the first year they appear in our sample, the PNLRs who eventually elect to list are statistically indistinguishable from nonlisting firms in terms of size, profitability, capital structure, and outside ownership, suggesting that they have a similar initial asset endowment. However, the PNLRs that eventually list differ in terms of management and payout policies.

We pay particular attention to the 25 PNLRs in our data that directly list on a formal exchange. To achieve identification, we analyze changes in governance using a firm fixed-effects difference-in-difference (DiD) setting where we benchmark listing firms against eventually listing firms. We find direct listing REITs increase nominating and compensation committee independence in compliance with exchange rules. More interestingly, we document governance improvements beyond those mandated by regulatory requirements. Specifically, these firms become less opaque, add more independent directors to their board, and are more likely to appoint professional managers once listed. Director and CEO compensation roughly triples following the listing, with most of this increase coming in the form of equity-based pay.

Because of how their shares are sold, nonlisted REITs are typically owned solely by retail investors (Corgel & Gibson, 2008). We find institutional ownership increases substantially after listing, with an average increase of up to 20% 3 years after listing. We find no evidence of coincident debt or equity issuances. A matched-sample analysis of the post-listing REITs reveals that the governance improvements observed are attributable to the enhanced liquidity engendered by exchange membership and increased institutional ownership. Overall, these results suggest that exchange listing has a positive influence on governance in an environment in which raising capital is not the company's primary objective.

A better understanding of how institutions, such as formal exchanges, influence corporate governance design is an important contribution to the literature. However, our governance results suggest that, prior to listing, uninformed shareholders are vulnerable to managerial rent extraction. We find that direct listing REITs are larger, younger, and professionally managed. They are more profitable, their profits are improving, and they pay larger, more sustainable dividends. Consistent with the argument that exchange membership legally and reputationally binds the firm in a way that is difficult for poor quality managers to imitate, we find that 35% of direct listing REITs are compliant with exchange requirements prior to listing. Only 14% of nonlisting firms are compliant. These governance characteristics have the most influence on listing probabilities for the subset of companies that are difficult to distinguish based on financial performance alone. We conclude PNLRs' reputation as a poor investment that is driven by the nonlisting firms and that not all PNLRs are dubious, as suggested by the literature.

Our paper contributes to the literature on corporate governance and IPOs by exploiting a unique institutional setting. We examine a novel way of going public by analyzing an existing, but unstudied sample of financial firms that directly list. To our knowledge, this is the first paper to explore the governance effects of direct listings.[4] It follows in the tradition of prior work considering interesting, but often overlooked, corners of the financial markets to inform the mainstream corporate finance literature. Our paper fits with work by Howe and Shilling (1988) and French et al. (2012), who use REITs to study the capital structure and market efficiency, as well as research by Del Guercio et al. (2003), and Souther (2016, 2018) who use closed-end funds to research the impact of takeover defenses and corporate governance. Arguably the direct listing REITs subsample we study is small, but comparable to other research in

[4] We note, however, the pioneering work of a contemporaneous working paper by Zheng (2022), which theoretically studies the market implications of direct listings as an alternative to traditional IPOs. We are not aware of any other scholarship in finance on this topic.

top journals making inference from infrequent corporate events such as corporate name changes (Cooper et al., 2001; 95 firms), spinoffs (Danielova, 2008; 19 firms), and medical breakthroughs (Huberman & Regev, 2001; 1 firm).

Our work on direct listings is distinguished from other similar phenomenon such as cross-listings and ADRs (e.g., Doidge et al., 2009). We exclusively study U.S. domiciled firms that do not suffer from confounding effects that imperil an analysis of foreign companies in both observable (e.g., legal regimes) and unobservable (e.g., culture) ways. Further, many prior studies examine companies that are explicitly or tacitly exempt from SEC and exchange regulations (Siegel, 2005) binding on U.S. firms. Therefore, comparing our work on domestic listings to the existing literature brings new insight.

2 | PUBLIC NONLISTED REITS (PNLRS) AND DIRECT LISTINGS

2.1 | Institutional background on PNLRs

Even though their shares do not trade on any formal exchange, PNLRs are public companies registered with the SEC and are subject to the usual reporting requirements. As a REIT, PNLRs must keep a minimum of 75% of assets invested in real estate or related assets, obtain 75% of revenue from real estate, and pay out at least 90% of gross income to maintain their corporate tax-exempt status. According to one of the industry experts we spoke with, PNLRs initially raise capital by using extended shelf offerings made over the course of 1–3 years, during which time the firm typically accumulates a series of individual investment properties during an asset build-up period. PNLRs' investment focus runs the gamut of potential REIT investments, with assets ranging from multifamily housing and commercial offices to IT data centers and MRI facilities. They are primarily marketed to retail clients as "low beta" investments with "bond-like returns."[5] Corgel and Gibson (2008) find that the shares are most often sold for $10 and, because they are not actively traded, the REIT can maintain a $10 (albeit stale) share price throughout its nonlisted life. This fixed price may appeal to certain retail investors who are averse to the volatility associated with listed REITs, but PNLR investors usually have little liquidity for their stock.

PNLRs often have entrenching corporate governance provisions such as poison pills, staggered boards, and fees triggered by certain liquidity events. Further, their structure seems to benefit the REIT founders, sponsors, and advisors to the detriment of the investor. Wiley (2017) finds modal combined share purchase costs of 14%, with ongoing operating fees of more than 6% annually. Investors may face additional disposition fees and can give up rights to residual cash flows at liquidation.

Another difference between listed REITs and PNLRs is their planned lifespan. PNLRs issue shares at inception with a pre-established termination date usually ranging from 7 to 10 years. Venture capital-backed industrial firms also face a similar timeline for exit (Bascha & Walz, 2001). At the end of their limited life, PNLRs can provide investors with liquidity by (1) selling the portfolio and distributing the proceeds (either selling to a private equity buyer or liquidating individual properties), (2) merging with a listed REIT, or (3) listing the REIT on an organized exchange (most often the NYSE).[6] The termination date is not legally binding (i.e., the PNLR can remain as such indefinitely), but failure to meet it carries serious reputational penalties for PNLR managers who serially use this financing structure.

The average PNLR tends to deteriorate in value. Seguin (2016) estimates that the equity claims of PNLRs are worth 23%–80% less than those of comparable listed REITs. The low valuations are attributed to high up-front fees, poor operating performance, lack of stock liquidity, and potential management conflicts of interests (Sahin, 2012).[7] Relative

[5] We thank Michael Dorigan of Conversion Financial Services for providing his personal experience with how the typical PNLR is capitalized and sold to retail clients.

[6] The first two liquidity options, while interesting and worthy of study, do nothing to inform us about the effect that public exchanges have on the corporate governance of firms and are, thus, not examined here. They also make the question of the continuing expropriation of minority shareholders irrelevant, as the firm ceases to exist or continues as a wholly owned subsidiary.

[7] See also, from the SEC, Investor Bulletin: Nontraded REITs (August 31, 2015) at https://www.sec.gov/oiea/investor-alerts-bulletins/ib_nontradedreits.html.

to public REITs, PNLRs are opaque with complex governance structures (Husson et al., 2012). Overall, the evidence suggests that they are poor investments.

Why, then, do PNLRs exist? The primary reason offered by finance scholars is the combination of optimistic claims by PNLR management combined with effective broker sales efforts. PNLRs often advertise high dividends, especially early on. Unfortunately, these apparent high dividend yields are often an illusion. Seguin (2016) finds that PNLRs keep their dividend yield unsustainably high by paying part of these distributions out of invested capital. Asset sales and mergers are conducted on management's terms and resulting liquidity-event share values are generally a fraction of their original offering price.

However, a less nefarious explanation exists. PNLRs are typically smaller than public REITs and often invest in a series of individual properties rather than a single sizeable investment. Therefore, the retail equity capitalization model is workable. Managers may also find it less intrusive than institutional funding, who might demand input on running the firm and have a strong preference for daily liquidity (i.e., listed securities). Successful PNLR managers satisfy the limited duration requirement and afford themselves the ability to exit the firm (if desired) via listing. While the available evidence shows that PNLRs have disappointing performance for most of their liquidity events (e.g., acquisition by a listed REIT), the shareholders at direct listing REITs appear to fare much better. The listing-day price for direct listing REITs is 66% greater than their average estimated net asset value (NAV) compared to the average 29% acquisition value increase (computed from Henderson et al., 2016, tab. 2).

2.2 | Direct listing process

When joining a public exchange, all the direct listing REITs in our sample use a similar mechanism, and the process is similar for industrial firms.[8] According to another industry expert we interviewed, direct listing companies are typically well-capitalized prior to listing and are not looking to raise funds. Of note, while raising capital, the typical IPO experiences substantial underpricing averaging around 20% of the offer price. Further, prior research shows underpricing is exacerbated when the IPO firm is surrounded by disreputable peers (Kuvvet & Palkar, 2020). This is a considerable disincentive for companies already having sufficient capital to fund their growth opportunities. In our setting, underpricing would result in offering shares at a substantial discount to the REIT's NAV and is a major motivation for why PNLRs directly list rather than conduct an underwritten offering.[9]

Retail investors are averse to volatility and may be uncertain about the direct listed company's stock price prior to listing. Further, management may wish to avoid supply imbalances on the first day of trading caused by existing shareholders rushing to sell. Consequently, several PNLRs announce a classic or a modified Dutch auction tender offer for shares before listing.[10] This provides early investors an opportunity to cash-out at a known price.[11] The direct listing REITs in our sample rarely conduct the tender offer for more than 15% of their existing shares, and in case of oversubscription, shares are accepted on a prorated basis. Although tenders are common practice, some direct listing REITs skip this transaction.

[8] Prior to the February 2018 rule change (see amendment to Section 102.01B of the NYSE Listed Company Manual) that enabled Spotify to directly list, the NYSE could only list companies on a case-by-case basis if (1) they were not already registered with the SEC and (2) the listing was not in connection with an underwritten IPO. Even if considered, the company must have had at least a $100 MM valuation and several months of sustained trading history in private markets (Nickerson, 2019). Because they are already registered with the SEC, PNLRs are not bound by this requirement.

[9] We thank Keith Allaire, managing director at Robert A. Stanger & Co., Inc., for his correspondence regarding PNLR direct listings.

[10] A modified "Dutch Auction" tender offer is an auction structure in which tendering shareholders specify, from within a given range, a price at which they are willing to tender all or a portion of their shares. Once all tenders are received, the purchase price for all tendered shares accepted for payment is the lowest price per share from among the specified offer range at which the shares have been tendered that will enable the company to purchase the maximum number of shares, subject to the conditions of the tender offer.

[11] Several of the newly minted industrial direct listings (such as Slack, Roblox, Squarespace, Asana, ZipRecruiter, and Coinbase) also repurchased shares from employees and early investors prior to their direct listings.

After the tender, direct listing firms simply list the outstanding stock on an exchange. At the NYSE, this entails choosing a market for the stock (i.e., NYSE, NYSE American, or NYSE Arca), reserving a ticker, and selecting a designated market maker (DMM).[12] Once listed, its transfer agent records the share movement to the exchange for those directly holding stock, unless the investor elects to transfer those shares to a custodial account using the Direct Registration System (DRS).[13] Shares held at brokerage accounts are handled by the custodian, and the retail investor can trade the newly listed REIT like any other public stock.

2.3 | Why do PNLR direct listings offer an advantage to IPOs for studying the "listing effect" on governance?

Studying direct listing REITs provides advantages over IPO startups when examining the influence of public exchanges on corporate governance. The typical IPO firm derives much of its value from its future growth opportunities, intellectual property, and other intangible aspects of its business. There is opacity in both management's motivation and the quality of the assets they control. In contrast, although property values are not known with absolute certainty (Garmaise & Moskowitz, 2004), real estate equities are more easily understood than the typical industrial stock because their assets are tangible with regularly reported NAVs, predictable cash flows, and regulated payouts (Gokkaya et al., 2015). Because we can explicitly control for these REIT performance features, this may lessen unobserved heterogeneity concerns adversely affecting alternative IPO studies.

However, like industrial IPOs, the ability and motivations of the REIT's managers remain opaque to investors. It is important to emphasize that the heterogeneity across management and governance regimes is a source of opacity we study in this paper. Prior research shows that, even among REITs, information problems abound and are particularly severe when they have high retail investor ownership (Wang et al., 1992), poor disclosures (Devos et al., 2019), and when they are poorly managed (Chen & Lu, 2006). A strength of the PNLR setting is that we homogenize the sample firms' assets but examine differences in management style and governance. Conversely, in most other industries, there is confounding uncertainty about the quality of assets and management simultaneously. Our setting offers a particularly rich cross-sectional environment to conduct our tests regarding the motivations for and consequences of public listings.

Additionally, outside the literature on the cross-listing of foreign firms (e.g., Doidge et al., 2009), scant attention has been given to governance changes around domestic listings. Instead, much of the literature studies public listing as a method by which managers can increase the firm's investor base, signal asset quality to potential investors, or merely raise capital for the firm. This is understandable. Typically exchange listing is accompanied by the firm's IPO, whereby the company simultaneously lists its stock on the exchange and, for the first time, offers it for sale to the public. Thus, the effect of a public listing is conflated with the firm's desire to raise capital. It is unclear whether any changes in governance are attributable to the company's appeal to investors' appetites, the exchange listing, or both. Furthermore, we know very little about the corporate governance of unlisted firms because companies are not required by the SEC to disclose these details until just before the IPO when they file their prospectus. Notably, this limitation also applies to the recent direct listings by industrial firms. Nonlisted industrials, of course, remain dark, and we have no data on them whatsoever.

However, in our unique sample, PNLRs capitalize themselves by selling shares to the public without listing. Although their shares do not trade at any organized exchange, they are registered with the SEC and are thus required to periodically file SEC-mandated forms as would any other public firm. That is, they must disclose their governance and financials whether they are listed on a formal exchange or not. Therefore, *unlike nearly all other studies of IPOs*, we have

[12] https://www.nyse.com/get-started

[13] https://www.nasdaq.com/investing/glossary/d/direct-registration-system

a long multiyear time series of prelisting company performance and governance data, which allows us to examine the crucial determinants influencing the decision to list on a formal exchange.

Because typical IPO underpricing would likely result in an offer price below their NAV, PNLRs often favor direct listings over traditional offerings. As a result, this gives us the unique opportunity to examine firms that list on an exchange, providing insight into the consequences of listing without the confounding effect of raising capital. Therefore, we can compare firm characteristics before the listing with those after, as well as the difference between firms that choose to list and those that elect not to list. In any other setting, this would not be possible. Studying the listing of PNLRs provides a distinct advantage to alternative research designs examining cross-listings. Because our sample is wholly comprised of U.S.-domiciled companies, we are free from the concerns of confounding legal regimes or cultural differences that might plague a study of international firms listing on domestic exchanges.

3 | HYPOTHESIS DEVELOPMENT

PNLRs underperform listed REITs, leading to a widespread view that PNLRs are poor investments (Henderson et al., 2016; Sahin, 2012). However, the extant literature does not investigate the moderating firm characteristics driving the differential performance of PNLRs. Indeed, the PNLR structure may be ideally suited for real-estate investments in the small-to-medium-sized property market. Scholars have long feared that public market participants induce managers to myopically focus on the current stock price instead of long run value creation (e.g., Stein, 1988). Because PNLRs are capitalized by unintrusive retail equity investors, their managers can commit to projects that are too small to effectively develop and individually monitor for institutional investors but still offer an attractive long-run upside. However, PNLRs following these strategies may need a lengthy period of exceptional profitability to distinguish themselves from disreputable peers for potential buyers. Given their finite life, this may be untenable.

The risk of rent extraction is high once retail investors participate in a PNLR. Management can either request that they repay their investment through cash dividends or during the final liquidity event. It is important to recognize that governance listing standards at major formal stock exchanges are constraining. Listing firms credibly commit to protecting minority shareholders from expropriation by legally bonding themselves to higher regulatory standards and exposing their firms to a greater threat of enforcement (Coffee, 2002). Requirements such as director independence guidelines and limits on dilutive stock issuances reduce management's ability to extract rents from low information investors. Listing further reputationally bonds the firm to oversight from other intermediaries such as financial analysts, institutions, and the market for corporate control, and incentivizes the development of reputational capital with other capital market participants (Burns et al., 2007; Siegel, 2005). Simply enacting governance changes without the binding effect of an exchange listing is not convincing because a nonlisted firm could reverse those policies at their discretion once in receipt of investors' monies.[14]

Prior research suggests that low-quality firms with weak governance, which are run for the benefit of their founders rather than their disinterested shareholders, will avoid formal listings (Piotroski & Srinivasan, 2008). Instead, they may prefer to remain capitalized as PNLRs and enjoy the "quiet life" without activist shareholder intrusions to monitor them (Bertrand & Mullainathan, 2003), especially if they have not adhered to their investors' planned investment period and, therefore, are unlikely to solicit capital in this format again.

In contrast, high-quality PNLRs, run wholly by professional managers overseen by boards that are already governance compliant with the major exchanges, would find the marginal cost of listing more agreeable. Reputable development REITs looking to harvest profitable investments would certainly fit in this category, especially managers of PNLRs whose projects may have had poor initial performance but attractive long-run upside (i.e., J-curve payoffs). These companies should enjoy higher valuations as they distinguish themselves from the low-quality types and gain

[14] Investors also face this problem with industrial firms. The venture capital industry typically resolves this issue through staged investment and active involvement in managing the company.

the added benefit of liquidity (Davis et al., 2021), and greater access to institutional investors by becoming a listed firm. Even if their success is readily apparent and management does not currently extract rents, exchange listing may still have value. The implicit contract between current management and their shareholders to not act opportunistically could be severed at any point (Johnson et al., 2015). Voluntarily binding the firm through exchange listing ensures minority shareholders against future expropriation from new managers who may arrive by succession or acquisition.

We hypothesize that high-quality managers will bond their firms with a formal exchange listing, an action not easily undertaken by poor-quality managers. Direct listing REITs should be larger, professionally managed, and have sustainable payout policies. They should also be more profitable, and this should be improving. Given the finite nature of these investments, they should list early in the company's life.

> **H1**: Direct listing firms are younger, better performers with stronger governance and a lower propensity to extract rents from their investors as compared to other PNLRs. Higher-quality firms legally and reputationally bind themselves to work in shareholders' interests via exchange listing.

We identify two channels for public listings to influence internal corporate governance. The first is due to membership requirements. Specifically, public listing requires majority board independence and wholly independent audit, compensation, nominating, and governance committees.[15] Noncompliant firms will immediately conform to exchange requirements. The second, arguably more interesting channel results from the market microstructure and public perception consequences of listing on a formal exchange. Early work by Baker (1993) shows that 100% of corporate managers stated that NYSE membership increased their firm's prestige, while 96% felt it increased investor interest and 86% agreed it increased liquidity. Christie and Huang (1994) support these results, finding that moving from OTC markets to the NYSE reduces trading costs and narrows spreads. Edelman and Baker (1990) show that the liquidity gains for OTC shares are most prevalent for less liquid stocks. Baker et al. (2002) also confirms the survey evidence. They document international firms listing on the NYSE enjoy greater analyst coverage and attention by the financial press.

Financial press scrutiny is a powerful motivator to induce governance improvements, and the heightened visibility of exchange membership sharpens the incentives of the managerial labor markets for the listing firm's officers and directors once in the public eye (Harford & Schonlau, 2013). The prestige of a formal listing also makes it easier to attract new independent directors. Further, an active market for the company's stock empowers the compensation committee to offer pay packages that better align incentives with those of shareholders. Executives may be reluctant to be paid in stock or stock options if the payoffs are not marketable when realized but might gladly accept such remuneration when the stock is widely traded. Finally, the visibility of exchange membership elicits voluntary governance improvements that build reputational capital with institutions and commercial banks (Siegel, 2005).

We hypothesize that due to enhanced visibility and stock liquidity, internal corporate governance improves during and following listing, even beyond the bounds of listing requirements. Direct listing companies will see improvements in board structure, compensation, and professional management.

> **H2**: The internal governance of directly listed companies improves outside the bounds of regulatory requirements at and after joining a public exchange, particularly for those with greater stock liquidity.

Direct listings are not a capital-raising event, so there is no structural relation between joining an exchange and the ownership of the firm's securities. However, if listing increases the liquidity of the public float, exchange membership introduces an additional external channel for corporate governance improvements. Maug (1998) demonstrates analytically that market liquidity reduces the transaction costs for activist investors engaging in costly monitoring, thereby increasing the incentive to become a blockholder. Edmans et al. (2013) use the natural experiment of deci-

[15] NYSE Listed Company Manual Section 303A.

malization to empirically show that liquidity increases hedge funds' blockholdings. Survey evidence by Mccahery et al. (2016) suggests that liquidity is a major factor in institutions' willingness to intervene in the affairs of portfolio companies. Further, Aggarwal et al. (2011) document that once institutional investors are present, additional corporate governance improvements ensue. Consequently, we argue that institutional owners' appetite for direct listed firms will increase post-listing. The sudden arrival of additional blockholders introduces more qualified and effective outside monitoring, thereby improving the external governance of the direct listed company and may lead to subsequent internal governance improvements.

> **H3**: Institutional ownership of direct listing firms will increase post-listing, thereby heightening external governance quality. Increasing institutional ownership will induce other governance improvements.

4 | SAMPLE SELECTION AND EXPERIMENTAL DESIGN

4.1 | Sample selection

We obtain a listing of 143 sample PNLRs from the SNL Financial Real Estate database and the National Association of Real Estate Investment Trusts (NAREIT) from 2002 to 2019. We hand-collect financial and corporate governance data from the PNLRs' SEC filings. We identify direct listing REITs by recording the first entry firms with SIC code 6798 in the Center for Research in Security Prices' (CRSP) daily stock file and cross-reference them to our PNLR listing. We supplement this with data from a private investment bank that took several PNLRs public.[16] We consult the PNLRs' SEC filings and press releases to confirm the listing event and verify the date. Of the 143 PNLRs in our sample, we identify 25 that listed on an exchange between 2002 and 2019, which we refer to as our "direct listing REITs" sample.[17]

The temporal distribution of both listed REITs and PNLRs is summarized in panel A of Table 1.[18] In any given year, the number of PNLRs in the marketplace ranges from 26 to 71. By comparison, the number of listed REITs on formal exchanges ranges from 142 to 189. PNLR listings begin in 2002, with the offerings becoming more common toward the end of our sample period. As we report in panel B of Table 1, our full PNLR sample is comprised of 143 firms (663 total firm-year observations). Twenty-five of these eventually lists on a formal exchange (105 total firm-year observations), while 118 remain PNLRs (558 total firm-year observations). The direct listing sample for our DiD tests consists of 105 pre-listing firm-year observations, 25 listing-year observations, and 122 post-listing firm-year observations.

Table 1, panel C reports summary statistics for our full sample of 663 firm-year PNLR observations (including firms that eventually list). The average firm is 4 years old, has $1.3 billion in assets, and has funds from operations (FFO) of $33 million annually. The officers or directors are founding family members at approximately 70% of the sample firms (i.e., *Founder Managed*), with the remaining 30% of PNLRs being *Professionally Managed*. One in five have a controlling *Blockholder*, but nearly all of these are held by the founding management team. Only 18% of firms are compliant with all NYSE listing requirements (*Governance Compliance*) while 82% are not (*Governance Noncompliance*). Roughly two-thirds of PNLRs pay dividends in excess of FFO (*Extractor*), suggesting that they are being paid out of capital to lure unsophisticated investors with high advertised dividend yields.[19] We identify *Development REITs* (i.e., companies focusing on high payoff projects)[20] and firms with *Turnaround Profits* (i.e., profits are improving over the observations'

[16] We thank our industry experts Keith Allaire (Robert A. Stanger & Co., Inc) and Chad Gorsuch (Stifel) for their advice and help in securing data.

[17] In our data, all the directly listing REITs are property REITs (i.e., there are no mortgage REITs in our sample). These firms specialize in various property types including office, industrial, retail, residential, diversified, lodging, healthcare, and timberland.

[18] Internet Appendix 1 presents an inventory of the listing events for the listing REITs in our subsample.

[19] In our discussions with industry expert Keith Allaire at Robert A. Stanger & Co., many nonlisted REITs advertise overly generous dividends in hopes that future profitability will be able to support them.

[20] We manually flag development REITs from SEC filings (e.g., Item 2 in Form 10-K). If managers self-describe the REIT as focusing on risky projects with high potential payoffs, using language such as development, redevelopment, negative initial cash flows, or turnaround project, we flag it as a development REIT.

TABLE 1 Descriptive statistics

Panel A: Changes in nonlisted and listed REITs from 2002 to 2019								
	PNLRs				Listed REITs			
Year	New	Liquidated or acquired	Moved to listed	End-of-period total	IPOs	Liquidated or acquired	From nonlisted	End-of-period total
2002–04	15	7	3	26	26	27	3	176
2005–07	23	13	1	35	16	51	1	142
2008–10	29	1	2	61	21	5	2	160
2011–13	31	13	8	71	24	10	8	182
2014–16	30	22	9	70	22	24	9	189
2017–19	15	15	2	68	10	27	2	174
Panel B: PNLR sample								
Sample	*N* firms	Firm-year observations						
PNLR sample	143	663						
PNLRs that do not directly list	118	558						
Direct listing REITs before listing	25	105						
Direct listing REITs during listing	25	25						
Direct listing REITs after listing	25	122						

(Continues)

TABLE 1 (Continued)

Panel C: Full sample						
Variable	***N***	**Mean**	**Stdev**	**25th**	**Median**	**75th**
Firm Age	663	4.189	2.672	2	4	6
Total Assets (in $ thousands)	663	1264,245	1757,905	162,394	544,946	1721,527
FFO (in $ thousands)	663	33,096	69,069	235	6526	46,748
FFO/Total Assets	663	−0.004	0.349	−0.003	0.017	0.036
Leverage	663	0.540	1.181	0.331	0.493	0.618
Dividends (per share)	663	0.739	0.744	0.430	0.640	0.775
Blockholder (0,1)	663	0.186	0.389	0	0	0
Professionally Managed (0,1)	663	0.291	0.455	0	0	1
Turnaround Profits (0,1)	663	0.195	0.396	0	0	0
Development REIT	663	0.297	0.457	0	0	1
J-Curve Index (0,3)	663	0.785	0.837	0	1	1
Governance Noncompliance (0,1)	663	0.824	0.382	1	1	1
Extractor (0,1)	663	0.640	0.481	0	1	1
Rent Seeker Index (0,2)	663	1.463	0.611	1	2	2
Rent Seeker to J-Curve Spectrum (0,5)	663	1.317	1.081	1	1	2

Panel A depicts the evolution of the number of listed REITs and PNLRs over time. *New (IPO)* represents the number of new REITs entering the market (that IPO) in a given year. *Liquidated or Acquired* indicates the number of REITs disappearing from the market because of a liquidity event or an acquisition. *Moved to Listed* indicates the number of PNLRs listing on a major stock exchange. *From Nonlisted* indicates the number of PNLRs that joined a public exchange. Panel B details the distribution of our PNLRs sample, detailing the subsamples we use in our tests. *Panel C* reports the summary statistics for the full sample.

time series), but they only represent 30% and 20% of the sample observations, respectively. Collectively, these statistics support the notion that reputable PNLRs exist, but they are pooled with a larger number of companies run for the benefit of their founders.

4.2 | Experimental design: Estimating the likelihood of an exchange listing

We test whether direct listing companies differ prior to listing events by running the logistic regression model defined in Equation (1), which regresses listing on firm characteristics such as size, profitability, capital structure, payout policy, and corporate governance for REIT *i* at time *t*.

$$\begin{aligned}\ln\left[\frac{\Pr(\textit{Listed}_i=1)}{1-\Pr(\textit{Listed}_i=1)}\right] &= \beta_0+\beta_1\ln\left(\textit{Total Assets}_{i,t}\right)+\beta_2\ln\left(\textit{Firm Age}_{i,t}\right)+\beta_3\,\textit{FFO/Total Assets}_{i,t}+\\ &\beta_4\,\textit{Leverage}_{i,t}+\beta_5\,\textit{Dividends Per Share}_{i,t}+\beta_6\textit{Blockholder}_{i,t}+\beta_7\,\textit{Professionally Managed}_{i,t}.\\ &+\beta_8\,\textit{Turnaround Profits}_i+\beta_9\,\textit{Development REIT}_{i,t}+\beta_9\,\textit{Governance Compliance}_{i,t}\\ &+\beta_9\,\textit{Extractor}_{i,t}+\delta_t+\varepsilon_{i,t}\end{aligned} \tag{1}$$

The dependent variable, $Listed_i$, is an indicator equal to one if company *i* directly lists on a formal exchange and zero otherwise. We also include several predictors specific to our setting: $Professionally\ Managed_{i,t}$, $Turnaround\ Profits_i$, $Development\ REIT_{i,t}$, $Governance\ Compliance_{i,t}$, and $Extractor_{i,t}$. We also present variations of this model that utilize three indices combining some of the indicator variable qualities: (1) the $J\text{-}Curve\ Index_{i,t}$ (0,3), which identifies development or turnaround stories, (2) the $Rent\ Seeker\ Index_{i,t}$ (0,2), which identifies companies most likely run for the private benefit of the founding managers, and (3) the $Rent\ Seeker\ to\ J\text{-}Curve\ Spectrum_{i,t}$ (0,5) or *RSJCS* (0,5), which combines the previous two indices into a single metric where a zero identifies rent-seeking companies and a five identifies successful development companies. The model includes year-fixed effects (δ_t) and the *p*-Values reported are computed using two-way firm-year clustered standard errors. All other control variables are defined in Appendix 1.

4.3 | Experimental design: Difference-in-difference (DiD) analysis estimating the effect of listing on corporate governance

Because of both the observable and unobservable differences between actively traded listed companies and the infrequently traded or monitored nonlisted firms in our sample, it would be inappropriate to compare the governance of nonlisted REITs to listed ones. Instead, we examine the changes in governance for nonlisted companies that elect to list on a formal exchange. This is done around the date of their listing in a DiD setting, like that of Bernstein et al. (2016), where our treated firms are compared to "eventually treated" firms to account for unobservable differences influencing the decision to list.

Specifically, these regressions compare the governance of the 25 direct listing and 122 post-listing firm-year-observations to the 105 firm-year-observations of companies that will eventually list. Our method allows for estimating the impact of listing on governance quality after controlling for time-invariant, firm- and exchange-specific characteristics. PNLRs choosing to list are the treatment group, while the *eventually listing* PNLRs electing not to list that year serve as the counterfactual (control) group. By examining the corporate governance of the PNLRs pre- and post-listing with the inclusion of our battery of fixed effects, we allow the PNLRs themselves to control for the unobservable heterogeneity unrelated to the listing decision that might also explain differences between the governance of listed and unlisted firms.

We note that our DiD setting is centered on PNLR listing, which is not in itself an exogenous event. As such, we caution the reader that there could be some other time-varying omitted factor not accounted for by our battery

of fixed effects that might explain our results.[21] To examine the impact listing has on the governance of direct listing companies, we estimate the fixed effects regression model described by Equation (2) as our second empirical specification:

$$Governance\ Proxy_{i,t} = \beta_0 + \beta_1 Listing\ Year_{i,t} + \beta_2\ Post\ Listing_{i,t} + \beta_3\ \ln\left(Total\ Assets_{i,t}\right) + \beta_4\ FFO/Total\ Assets_{i,t} + \beta_5\ NYSE_{i,t} + \beta_6\ NASDAQ_{i,t} + \beta_7\ AMEX_{i,t} + f_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

Governance Proxy$_{i,t}$ represents the governance measure investigated for company *i* at time *t*. *Listing Year*$_{i,t}$ is an indicator variable equal to one if the observation occurs during the year of the listing (year $t = 0$), and zero otherwise. *Post Listing*$_{i,t}$ is an indicator variable equal to one if the observation occurs after the year of the listing (starting year $t = 1$), zero otherwise. The combined effect of the two variables reflects the net effect of listing on the corporate governance proxy. The *p*-Values associated with the *F*-test for this joint effect reported in the tables denote whether the effect is statistically significant.

We use *Total Assets*$_{i,t}$ as a proxy for size and *FFO/Total Assets*$_{i,t}$ as a control for profitability. Because each exchange has its own listing standards, we include fixed effects for listings on the New York Stock Exchange ($NYSE_{i,t}$), NASDAQ MarketSite ($NASDAQ_{i,t}$), or the American Stock Exchange ($AMEX_{i,t}$),. Each model includes firm fixed effects (f_i) to control for time-invariant unobserved heterogeneity and year-fixed effects (δ_t) to address market-wide effects. Identification comes from within-firm variation over time.

5 | RESULTS

5.1 | What type of PNLRs elect to list on formal exchanges?

We start our analysis by studying the PNLR market and the factors that contribute to listing as predicted by H1. In Table 2, panel A, we isolate the very first year each company appears in our dataset and report their characteristics bifurcated by those that will eventually directly list and those that remain unlisted throughout their life. The permanently unlisted PNLRs and direct listing REITs are similar in terms of size, profitability, leverage, and ownership at the outset. This may not be surprising. Property investment opportunities are arguably homogenous for aspiring real estate entrepreneurs at any point in time. However, direct listing REITs are more likely to be professionally managed.[22] Over 80% of permanent PNLRs tend to pay unsustainable dividends out of capital. These figures are consistent with the notion that the initial asset endowment is largely homogenous between the two groups, but that their management styles are not.

In Table 2, panel D, we study how the evolution of these characteristics moderate the likelihood of a PNLR eventually choosing to list in a multivariate setting. We fit the logistic regression defined by Equation (1) using all firm years in our panel dataset and report the results in Model (1). Consistent with H1, firms electing to list are significantly larger, younger, and more profitable than other PNLRs. An estimation of marginal effects at sample means suggests that a one-standard deviation increase in firm size and profitability increases the probability of listing by 37% and 44%, respectively. A one-standard deviation decrease in firm age implies a 22% increase in the probability of listing.

[21] In the Internet Appendix, we examine the validity of our DiD design by establishing the existence of parallel trends between our treated and eventually treated firms prior to listing. We dismiss the concern that serial correlation in the data drives our results. We do acknowledge concerns that the treated firms may exhibit governance improvements due to market-wide secular trends in governance that our fixed effects would not absorb. Therefore, we address the possibility of contemporaneously evolving unobservable co-variates resulting in endogenous self-selection and the effect of aggregate secular trends.

[22] The *Turnaround Profits* indicator suggests roughly a third of these companies will show signs of improving profits in future observation years, plausibly marking successful development.

TABLE 2 What type of PNLRs elect to list on formal exchanges?

Panel A: Difference in group means––first year				
Variable	**Direct listing REITs**	**Other PNLRs**	**Difference**	***t*-stat**
N	25	99		
Total Assets (in $ million)	395,860	233,732	162,129	1.32
FFO/Total Assets	0.01	-0.01	0.02	0.84
Leverage	0.47	0.70	(0.23)	1.22
Blockholder	0.28	0.30	(0.02)	0.22
Professionally managed	0.44	0.22	**0.22**	**2.23****
Turnaround profits	0.36	0.15	**0.21**	**2.39****
Development REIT	0.36	0.24	0.12	1.19
Governance Noncompliance	0.80	0.90	0.10	1.14
Extractor	0.52	0.83	**−0.31**	**−2.83*****
Panel B: Rent seeker to J-curve spectrum (RSJCS) breakdown				
RSJCS	**PNLRs**	**Listing**	**ALL REITs**	**% Listing**
0	158	5	163	3.10%
1	215	30	245	12.20%
2	127	34	161	21.10%
3	47	23	70	32.90%
4	10	11	21	52.40%
5	1	2	3	66.70%
Total	558	105	663	15.84%

(Continues)

TABLE 2 (Continued)

Panel C: Conditional listing proportions by subgroup								
	RSJCS (0 and 1)			RSJCS (2 and 3)			RSJCS (4 and 5)	
Type	Extreme extractor	Well-governed		Extreme extractor	Well-governed		Extreme extractor	Well-governed
PNLRs	258	81		57	6		7	6
Listing	24	8		9	8		2	3
All REITs	282	89		66	14		9	9
Listing %	8.51%	8.99%		13.64%	57.14%		22.22%	33.33%
Subgroup listing %	8.58%			24.68%			54.17%	
χ^2 Statistic	0	0.02		4.33	7.94		3.7	1.57
p-Value	0.97	0.89		0.04	<0.01		0.05	0.21
Panel D: Likelihood of direct listing								
						RSJCS		
						0 and 1	2 and 3	4 and 5
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(Firm Age)	**−1.09*****	**−1.48*****	**−1.37*****	**−1.38*****	**−1.19*****	**−1.53*****	**−2.05*****	**−2.93***
ln(Total Assets)	**0.33*****	**0.33*****	**0.29*****	**0.29*****	**0.32*****	**0.43****	**0.42****	2.96
FFO/Total Assets	**5.65****	**9.53***	**6.96***	**8.52***	**6.31****	**9.57***	2.14	3.04
Leverage	0.01	−0.42	−0.38	-0.35	−0.19	0.09	**−1.73***	5.41
Dividends per share	**0.74*****	**0.61*****	**0.64*****	**0.63*****	**0.67*****	**1.60*****	0.22	0.34
Blockholder (0,1)	0.29	0.35	0.31	0.28	0.34	0.09	**1.33****	−6.81
Professionally Managed (0,1)		**0.75*****						
Turnaround Profits		**1.07*****						
Development REIT (0,1)		**0.47***						
Governance Compliance (0,1)		**1.50*****						

(Continues)

TABLE 2 (Continued)

						RSJCS		
						0 and 1	2 and 3	4 and 5
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Extractor (0,1)		**−0.82*****						
J-Curve Index (0,3)			**0.76*****					
Rent seeker index (0,2)			**−1.13*****					
RSJCS (0,5)				**0.89*****				
Extreme Extractor (0,1)					**−0.90*****	0.04	**−0.93****	−4.35
Well Governed (0,1)					**0.90*****	**1.03***	**2.88*****	6.73
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	663	663	663	663	663	408	231	24
R^2	18.85%	32.79%	34.92%	34.46%	27.82%	35.85%	47.68%	74.81%

Note: *Panel A* reports the *t*-test for difference in group means of our variables of interest for direct listing REITs and permanently nonlisted PNLRs in their first year. Panel B breaks down both groups along the *Rent Seeker to J-Curve Spectrum (RSJCS)*. Panel C reports the proportion of listings based on a firm's score on the RSJCS spectrum for *Extreme Extractors* firms, *Well-Governed* firms, and the overall RSJCS category average. *Extreme Extractors* are firms who qualify as *Extractors* and are *Governance Noncompliant*. *Well-Governed* firms are firms who qualify as *Nonextractors* and are *Governance Compliant*. Note that for the RSJCS 0–1 category, *Well-Governed* firms are firms presenting one of the precited characteristics (*Nonextractors* or Governance *Compliant*). For the RSJCS 4–5 category, *Extreme Extractors* are firms presenting one of the precited characteristics (*Extractors* or *Governance Noncompliant*). Chi-squared differences in proportion test statistics and their associated *p*-Values are reported for the listing proportion for *Extreme Extractor* and *Well-Governed* firms relative to the subgroup listing proportion. *Panel D* reports the results of a logistic regression of the likelihood for a PNLR to list. The dependent variable is *Direct Listed*$_{i,t}$, an indicator variable equal to one if the firm lists on a public exchange (i.e., a PNLR that directly lists) and zero for any other PNLR. All variables are defined in Appendix 1. ***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

Given an unconditional likelihood of direct listing at 16% in our sample,[23] the implied economic effects we observe are meaningful.

Examining model (2) of Table 2, panel D reveals direct listing REITs are more likely to be *Professionally Managed* and compliant with the exchange's independence and governance requirements. The estimated marginal effect shows that PNLRs managed for the benefit of their founders are 8% less likely to list. We also observe a strong effect for governance compliant firms with a statistically significant marginal effect of 9%. Again, the economic effect is consequential. We also find that direct listing REITs are more likely to be successful at turnaround projects and exhibit increasing profits. There is weak evidence that companies involved in development properties are more likely to list, but the result is marginally significant. In contrast, the estimate on the *Extractor* indicator is significantly negative, suggesting those firms paying unstainable dividends out of capital are less likely to directly list. Collectively, the univariate and regression evidence suggest that both the quality of governance and the real-estate assets play a significant role in the likelihood of listing.

Our next series of tests pushes the interplay between asset and governance quality further. Model (3) in Table 2, panel D presents results using the *Rent Seeker* and *J-curve* indices, which combine multiple facets of the players in the PNLR market. Successful J-curve companies (i.e., professionally managed development REITs with turnaround profits) are significantly more likely to list, while rent-seeking PNLRs (i.e., poorly governed firms that pay unsustainable dividends out of capital) are significantly less likely to list. This is consistent with our conjecture that higher-quality and better-governed firms list.

In panel B and Model (4) of panel D, we combine the Rent Seeker and J-Curve indices and stratify the permanent PNLRs and listing REITs using a combined *Rent Seeker to J-Curve Spectrum* (*RSJCS*) that ordinally ranks them across six distinct levels. First, we observe that a majority of firms lie in the two lowest levels (RSJCS = 0 and RSJCS = 1), an indication that most REITs lean towards the rent-seeking side of the index. This result is consistent with prior literature on PNLRs. Second, for each level of the index, we compute the proportion of REITs eventually listing on a formal exchange. The percentage listing increases monotonically with each level of the index. Model (4) shows that the results are similar in a multivariate setting. The marginal effects at sample means suggest that incrementing this index by one unit increases the likelihood of a direct listing by 11%.

In panels C and D of Table 2, we break down the index into three subgroups: RSJCS (0 and 1), RSJCS (2 and 3), and RSJCS (4 and 5). We further identify the subset of firms who are simultaneously *Extractors* and *Governance Noncompliant*. Arguably, these REITs are most likely to be rent-seeking instead of simply returning principal to shareholders and, we deem them *Extreme Extractors*. We create the contrasting subgroup that is comprised of *Nonextractors* and *Governance-Compliant* firms, and deem these firms as *Well-Governed* with a (0,1) indicator.[24] For each RSJCS subgroup, the listing proportions for *Well-Governed* are greater than those for the *Extreme Extractors*. Model (5) of panel D shows that the univariate results are confirmed in a regression setting.

We also conduct a difference in proportions test for whether the listing percentages of the *Well Governed* and *Extreme Extractor* firms differ from the overall RSJCS subgroup and report these results in panel C. An interesting pattern emerges. The effect of good governance or rent-seeking behavior is most striking for the subset of firms that might otherwise be difficult to differentiate on asset quality characteristics alone. Firms in the RSJCS (2 and 3) subgroup may exhibit one or two *J-Curve Index* characteristics, but likely not all of them. Arguably, firms in this subgroup stand to benefit the most by bonding themselves with a public listing. Within this group, 57.14% of *Well-Governed* observations list while only 13.64% of the *Extreme Extractor* firms do. Both are significantly different than the subgroup proportion of 24.68%.

[23] (105/663) = 0.158.

[24] *Extreme Extractors* are firms, which qualify as *Extractors*, and are *Governance Noncompliant*. *Well-Governed* firms are firms, which qualify as *Nonextractors* and are *Governance Compliant*. Because only one "well-governed" featured is possible in the RSJCS (0 and 1) category, *Well Governed* firms are firms presenting one of the precited characteristics (*Nonextractors* or Governance *Compliant*). Similarly, for the RSJCS (4 and 5) category, *Extreme Extractors* are firms presenting one of the precited characteristics (*Extractors* or *Governance Noncompliant*).

For the lowest RSJCS category (i.e., the low-quality firms), both *Extreme Extractors* and *Well-Governed* firms list with similar proportion to their overall subgroup (8.51% and 8.99%, respectively, vs. 8.58%). These firms exhibit little or no J-curve characteristics, so their poor asset quality is obvious and unsuitable for listing. For the highest RSJCS category (i.e., the high-asset quality firms whose success is readily apparent), the *Extreme Extractor* firms are significantly less likely to list (22.22% vs. 54.17%), but no effect is observed for those with good governance. However, we caution the reader against making strong inferences given the small sample size of this subgroup.

Regression models (6)–(8) in panel D seek to confirm the univariate tests. For the RSJCS (0 and 1) category, results suggest that *Well-Governed* firms are more likely to list once we control for covarying characteristics. Consistent with the univariate results, coefficients are particularly significant for firms in the RSJCS (2 and 3) category, as *Well-Governed* firms are significantly more likely to list, and *Extreme Extractors* are significantly less likely to list. None of the categories of interest is significant for the RSJCS (4 and 5) category.

We conclude that direct listing REITs differ from other PNLRs. These results provide strong support for our first hypothesis (H1) that companies electing to list are of higher quality and better governed. Interestingly, governance is most influential for those that are difficult to distinguish on asset characteristics alone. Exchange membership may be a strong signal that listing managers differ from those at other PNLRs that give these investments their poor reputation. We suspect this logic also extends to the industrial sector.

5.2 | What is the effect of listing on the corporate governance of PNLRs?

We classify corporate governance mechanisms into internal and external categories. Internal mechanisms are chosen by the firm and focus on the corporation's board of directors, but also include managerial incentives, and bylaw and charter provisions. External mechanisms exert control via forces that are not under the explicit direction of the firm such as regulators, the market for corporate control, or media coverage. H2 predicts that the exchange listing process will improve these measures of internal governance, in part, during the listing year and over time in the post-listing period. H3 makes similar predictions regarding external governance. We test these hypotheses in the following sections using the specification in Equation (2) and report results in Tables 3–6.

5.3 | Board and committee structure

In Table 3, we study the listing effect on board and committee structure by examining CEO duality, board size and independence, and committee independence. Results suggest that governance quality improves significantly following listing. Our first governance proxy, $Dual\ CEO_{i,t}$, is an indicator variable equal to one if the CEO is also the chairman of the board. CEOs who also serve in the position of board chair have the potential to use their extra influence to hinder the board's monitoring function. Such firms tend to underperform, and their CEOs are more entrenched (Goyal & Park, 2002). Assessing the model at sample means, we find that the frequency of dual CEOs decreases by 34 percentage points upon listing, from 67% to 33%. The proportion decreases by an additional 28% in the years following the listing, consistent with a long-run governance improvement. Although controversial, some research shows that larger boards may be beneficial in certain settings. For example, they bring additional human capital and increase the monitoring ability of directors (Coles et al., 2008). The coefficients for $Board\ Size_{i,t}$ suggest that direct listing REITs add an average of about one-half of a director to the board.

Stock exchanges have standards regarding certain governance characteristics that all listed firms must meet, particularly with regard to independence. For example, the NYSE requires a majority of the listed firm's directors to be independent within one year of the listing date. Although most of the firms in our sample (18 of 25) elect to list on the

TABLE 3 Board and committee structure

Dependent variable	*N*	Listing year	Post listing	*F*-test	ln(Assets)	FFO/Assets	Fixed effects	Overall R^2 (Within R^2)
Dual CEO	252	**−1.38****	**−1.19***	**12.52*****	−1.02**	−0.10	Exch./Firm/Yr	37.2%
Board Size	252	0.11	**0.31***	1.28	0.16	−0.29	Exch./Firm/Yr	79.0% (43.1%)
Number of Insiders	252	−0.01	**−0.52****	**3.12***	0.02	0.13	Exch./Firm/Yr	58.2% (30.0%)
Number of Outsiders	252	0.50	**0.73*****	**5.18****	−0.07	−0.42	Exch./Firm/Yr	78.4% (59.1%)
Board Independence	252	0.02	**0.09*****	**4.74****	−0.00	0.22	Exch./Firm/Yr	72.1% (52.7%)
Compensation Committee	252	**0.26*****	**0.45*****	**17.27*****	0.06	0.24	Exch./Firm/Yr	60.4% (51.3%)
Nominating Committee	252	**0.22*****	**0.40*****	**15.41*****	0.06	0.24	Exch./Firm/Yr	66.0% (62.9%)

Note: This table presents a series of regressions to examine the effect of listing on board structure in a difference-in-difference (DiD) setting. For continuous variables, we run an OLS specification. For binary variable *Dual CEO*, we run a logit regression. Model: $Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ Listing\ Year_{i,t} + \beta_2\ Post\ Listing_{i,t} + \beta_3\ ln(Total\ Assets_{i,t}) + \beta_4\ FFO/Total\ Assets_{i,t} + Exchange_{i,t} + f_i + \delta_t + \varepsilon_{i,t}$ where *Listing Year* is the coefficient of an indicator variable that is equal to one if the observation occurs during the listing-year, zero otherwise. *Post Listing* is the coefficient of an indicator variable that is equal to one if the observation occurs after the listing event (listing-year excluded), zero otherwise. We include a vector of control variables including the log of total assets and the ratio of FFO to total assets, *Exchange* (i.e., NYSE, NASDAQ, and AMEX) fixed effects, firm (f_i) fixed effects, and year (δ_t) fixed effects. *F-test* reports the value of the test that the two dummies are zero jointly. We report overall R^2. Within R^2, values are also reported in parentheses for OLS regressions. All variables are defined in Appendix 1. ***, **, and * denote significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

TABLE 4 CEO and board compensation

Dependent variable	*N*	Listing year	Post listing	*F*-test	ln(Assets)	FFO/Assets	Fixed effects	Overall R^2 (Within R^2)
Executive Pay Disclosure	252	**1.14****	**3.24*****	**8.32*****	0.30	0.69	Exch./Firm/Yr	44.33%
Salary	158	**1.31***	**1.05***	**2.96***	0.54	−0.63	Exch./Firm/Yr	61.5% (46.5%)
Bonus	158	2.25	3.20	0.80	−1.29	−0.36	Exch./Firm/Yr	20.3% (24.7%)
Equity Compensation	158	**4.23****	**7.35*****	**19.63*****	0.18	−0.48	Exch./Firm/Yr	51.6% (50.0%)
Nonequity Compensation	158	**3.51***	4.35	1.92	−0.45	0.63	Exch./Firm/Yr	50.8% (35.9%)
Other Compensation	158	0.79	**3.81****	2.55	−0.11	−0.13	Exch./Firm/Yr	44.2% (31.4%)
% Equity-Based	158	**0.17***	**0.32*****	**20.16*****	0.01	0.08	Exch./Firm/Yr	49.9% (43.8%)
Total Compensation	158	**0.76***	**0.85****	**4.62****	0.69	0.84	Exch./Firm/Yr	71.0% (73.6%)
Board Compensation	252	**0.24***	**1.31*****	**6.77*****	0.49**	−0.27	Exch./Firm/Yr	85.5% (48.5%)

Note: This table presents a series of regressions to examine the effect of listing on logged CEO and board compensation in a difference-in-difference (DiD) setting. For continuous variables, we run an OLS specification. For the binary variable *Executive Pay Disclosure*, we run a logit regression. Model: $Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ Listing\ Year_{,t} + \beta_2\ Post_{i\ Listing,t} + \beta_3\ ln(Total\ Assets_{i,t}) + \beta_4\ FFO/Total\ Assets_{i,t} + Exchange_{i,t} + f_i + \delta_t + \varepsilon_{i,t}$ where *Listing Year* is the coefficient of an indicator variable that is equal to one if the observation occurs during the listing-year, zero otherwise. *Post Listing* is the coefficient of an indicator variable that is equal to one if the observation occurs after the listing event (listing-year excluded), zero otherwise. For all the dependent variables pertaining to CEO and Board compensation packages, we take the log dollar value to mitigate the influence of skewness. We include a vector of control variables including the log of total assets and the ratio of FFO to total assets, *Exchange* (i.e., NYSE, NASDAQ, and AMEX) fixed effects, firm (f_i) fixed effects, and year (δ_t) fixed effects. *F-test* reports the value of the test that the two dummies are zero jointly. We report overall R^2. Within R^2, values are also reported in parentheses for OLS regressions. All variables are defined in Appendix 1.

***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

TABLE 5 Professional management

Dependent variable	*N*	Listing year	Post listing	*F*-test	ln(Assets)	FFO/Assets	Fixed effects	Overall R^2 (Within R^2)
Insider Ownership	252	−0.00	−0.05	0.89	0.02	0.13	Exch./Firm/Yr	58.2% (14.39%)
Founder–Held	252	**−1.23*****	**−3.27*****	**10.00*****	−0.10	−0.35	Exch./Firm/Yr	70.88%
Founder–CEO	252	**−1.58*****	**−2.51****	**6.03****	−0.52*	−0.80	Exch./Firm/Yr	75.91%
Founder–Board	252	**−1.12****	**−3.19*****	**10.22*****	−0.24	−1.26	Exch./Firm/Yr	78.41%
Founder–Blockholder	252	−0.25	**−6.87*****	**11.86*****	0.22	−0.55	Exch./Firm/Yr	56.61%

Note: This table presents a series of regressions to examine the effect of listing on ownership variables in a difference-in-difference (DiD) setting. For continuous variable *Insider Ownership*, we run an OLS specification. For binary variables *Founder–Held, Founder–CEO, Founder–Board, Founder–Blockholder, and Presence of Blockholder*, we run a logit regression. Model: $Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ Listing\ Year_{i,t} + \beta_2\ Post\ Listing_{i,t} + \beta_3\ ln(Total\ Assets_{i,t}) + \beta_4\ FFO/Total\ Assets_{i,t} + Exchange_{i,t} + f_i + \delta_t + \varepsilon_{i,t}$ where *Listing Year* is the coefficient of an indicator variable that is equal to one if the observation occurs during the listing-year, zero otherwise. *Post Listing* is the coefficient of an indicator variable that is equal to one if the observation occurs after the listing event (listing-year excluded), zero otherwise. We include a vector of control variables including the log of total assets and the ratio of FFO to total assets, *Exchange* (i.e., NYSE, NASDAQ, and AMEX) fixed effects, firm (f_i) fixed effects, and year (δ_t) fixed effects. *F-test* reports the value of the test that the two dummies are zero jointly. We report overall R^2. Within R^2, values are also reported in parentheses for OLS regressions. All variables are defined in Appendix 1.

***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

TABLE 6 Institutional ownership

Dependent variable	*N*	Listing year	Post listing	*F*-test	ln(Assets)	FFO/Assets	Fixed effects	Overall R^2 (Within R^2)
Presence of Blockholder	252	1.65	**7.10*****	5.07**	−2.89*	0.60	Exch./Firm/Yr	66.63%
Num of Blockholders	252	−0.43	**1.55*****	**4.61****	−0.21**	0.18	Exch./Firm/Yr	73.2% (64.8%)
Num of Indep Blockholders	252	−0.36	**1.53*****	**5.12****	−0.12	−0.51	Exch./Firm/Yr	70.4% (65.9%)
Blockholder Ownership (%)	252	−0.03	**0.04***	0.54	−0.05**	0.16	Exch./Firm/Yr	61.8% (45.0%)
Num of Institutional Owners	252	−0.33	**1.66*****	**8.17*****	−0.11*	0.46	Exch./Firm/Yr	71.5% (66.9%)
Institutional Ownership (%)	252	−0.04	**0.12*****	**8.17*****	−0.01*	−0.04	Exch./Firm/Yr	73.1% (68.9%)
Shares Outstanding	252	0.15	0.55	1.78	1.28***	−0.04	Exch./Firm/Yr	88.1% (47.2%)
Long-term Debt	252	0.04	0.20	0.28	1.00***	−1.28	Exch./Firm/Yr	85.4% (34.6%)
Leverage	252	−0.00	−0.07	0.86	0.00	−0.66**	Exch./Firm/Yr	52.5% (28.8%)

Note: This table presents a series of regressions to examine the effect of listing on blockholder and institutional ownership variables in a difference-in-difference (DiD) setting. For continuous variables, we run an OLS specification. For binary variable *Presence of Blockholder*, we run a logit regression. Model: $Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ Listing\ Year_{i,t} + \beta_2\ Post\ Listing_{i,t} + \beta_3\ ln(Total\ Assets_{i,t}) + \beta_4\ FFO/Total\ Assets_{i,t} + Exchange_{i,t} + f_I + \delta_t + \varepsilon_{i,t}$ where *Listing Year* is the coefficient of an indicator variable that is equal to one if the observation occurs during the listing-year, zero otherwise. *Post Listing* is the coefficient of an indicator variable that is equal to one if the observation occurs after the listing event (listing-year excluded), zero otherwise. For the dependent variables *Shares Outstanding* and *long-term Debt*, we take the log dollar value to mitigate the influence of skewness We include a vector of control variables including the log of total assets and the ratio of FFO to total assets, *Exchange* (i.e., NYSE, NASDAQ, and AMEX) fixed effects, firm (f_i) fixed effects, and year (δ_t) fixed effects. *F-test* reports the value of the test that the two dummies are zero jointly. We report overall R^2. Within R^2 values are also reported in parentheses for OLS regressions. All variables are defined in Appendix 1.

***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

NYSE and all sample firms are at least 50% independent prior to listing (i.e., the board independence requirement is nonbinding), the increase in board size we observe is attributable to further efforts for increased board independence.

Our results indicate *Board Independence*$_{i,t}$ increases by nine percentage points on average in the post-listing period, (from 67% before listing to 76% post-listing). The *Number of Outsiders*$_{i,t}$ increases by 0.73 independent directors, while the *Number of Insiders*$_{i,t}$ decreases by 0.52, on average. The coefficients on the listing year indicators for independence-related variables are insignificant, consistent with outgoing directors needing time to cycle off the board. It appears that the newly listed companies attract independent directors, and both results are consistent with firm governance improving following the listing.

Finally, exchange listing requirements mandate fully independent nominating and compensation committees. Firms must have at least one independent committee member by the listing date, a minimum of a majority within 90 days of the listing date, and a fully independent committee within 1 year. Unsurprisingly, we observe that listing firms are significantly more likely to have an independent *Nominating Committee* and *Compensation Committee* following their listing. In fact, several PNLRs do not have either committee, so the board administers those functions. Consistent with the NYSE's grace periods, committee independence improves around the listing and in the long term. Both committees increase their independence by roughly 25 percentage points in the listing year, and roughly another 40 percentage points in subsequent years. One year after listing, all firms have fully independent committees.

The evidence on board and committee independence and dual CEOs suggests that board monitoring substantially improves following listing, much of it outside the bounds of what is required by exchange rules. This is supportive of our second hypothesis of improved internal governance.

5.4 | CEO and board compensation

Executive compensation is a powerful motivator to create shareholder wealth. In Table 4, we examine whether firms disclose top management and director pay. We also study the level (*Total Compensation*$_{i,t}$) and composition of CEO pay (*Salary*$_{i,t}$, *Bonus*$_{i,t}$, *Equity-based Compensation*$_{i,t}$, *% Equity-based Compensation*$_{i,t}$, *Nonequity Incentive Compensation*$_{i,t}$. *Other Compensation*$_{i,t}$). Finally, we study aggregate director pay (*Board Compensation*$_{i,t}$) as past literature shows that it is important to analyze executive and director compensation separately (Burns et al., 2021).

First, we observe that firms disclose more information about executive pay (*Executive Pay Disclosure*$_{i,t}$) both around and following the listing. In the prelisting period, many REITs declare not having any employees, as they claim that their executives are compensated for their work as part of a global package paid by an affiliated entity (often by a parent company). Less than 40% of the listing firms disclose their executive compensation prior to listing. Our coefficients suggest an increase of 20% in the number of firms disclosing this information in the listing year, and an increase of roughly 60% in the subsequent years.

Because executive compensation is a right-skewed variable, we log the dependent variable in all models regressing pay.[25] Most CEO pay dimensions increase significantly in the post-listing period. However, given the above result regarding disclosure, we caution the reader that our compensation analysis can only be conducted on the 158 firm-year observations with complete data. Our point estimates show that the average CEO's salary triples (an increase of 217%) after listing, and that total compensation increases by 114% in the listing year, and then doubles again (+134%) in the years following the listing (average compensation jumps from $709,720 before listing to $2516,059 after). The CEO's bonus is not significantly impacted by the listing and remains unchanged post-listing.

Equity-based compensation also increases significantly, although prelisting equity compensation is usually nonexistent and so the base for comparison is small. With respect to the proportion of performance pay, our results suggest

[25] Accordingly, the parameter estimates should be interpreted as approximate percentage changes after performing the appropriate $e^{\beta} - 1$ transformation.

that the proportion of equity-based compensation in the compensation package increases significantly (by 17 percentage points in the listing year and then by another 32 percentage points in subsequent years). In sum, these results indicate that CEO pay increases both in the listing year as well as in the post-listing period. There is also a shift in the incentive component of the CEO compensation package.

Directors see their compensation increase significantly following the listing, as the collective board pay rises, on average, by 24% around listing and then more than doubles in subsequent years (from $254,591 before listing to $847,240 post-listing). However, these figures do not take into account the fact that board size increases on average upon listing. The per capita increase is from $42,361 to $108,311 per capita, which is economically significant.

Overall, the combined *F*-tests provide strong evidence that there is a significant listing effect on CEO and board compensation, which indicates that pay increases sharply when a company lists. The controls are insignificant in almost every specification. This shows CEO compensation drastically increases once a company joins a public exchange, regardless of firm size or performance. However, increases in pay at the listing company might also attract talented executives to serve as officers or directors. Further, much of the increase in pay is in the form of equity, which is argued to align management's interests with that of shareholders. Therefore, we conclude that these results are broadly consistent with H2.

5.5 | Professional management

In Table 5, we explore the evolution of external governance mechanisms by looking at firm ownership. Insider ownership is a common tool to mitigate agency problems and founder managers are often major shareholders. However, founders might also use their status to impede the board's monitoring function and hinder good governance (Amit & Villalonga, 2006). Insiders often sell shares during an IPO or shortly thereafter using their newfound liquidity. In a similar fashion, insiders of PNLRs might utilize the post-listing liquidity to dispose of their holdings. We use several indicator variables of insider or founder influence: $Insider\ Ownership_{i,t}$, $Founder\text{-}CEO_{i,t}$, $Founder\text{-}Board_{i,t}$, and $Founder\text{-}Blockholder_{i,t}$. The last three denote whether the founder is the CEO of the firm, a member of the board, or if he holds at least 5% of the shares outstanding, respectively. The variable $Founder\text{-}Held_{i,t}$ captures whether the founder serves in any of these roles.

First, we observe that insider ownership is not affected by the decision to list. However, it is a different story when it comes to whether the founder runs the business instead of professional management. In univariate tests (unreported), we find that two-thirds of the listing firms are founder held 3 years before listing, while only 20% remain so 3 years after listing. Our regression analysis confirms that direct listing firms decrease founder involvement. This change occurs both in the listing year as well as over the long run (a decrease of 16% and 36%, respectively). The joint effect indicates the post-listing founder involvement in either top management, the board, or substantial shareholdings falls by 52%. More than a third of the prelisting sample is founder held, and the founder is often the CEO and chairman of the board. The number of firms whose founder is also the CEO and/or a director sees a comparable decrease. The number of firms whose founder is also a blockholder decreases measurably in the post-listing period. Overall, the results are consistent with founders handing over the company to professional management, but still holding onto their shares in the now-listed company.

5.6 | Institutional ownership

Existing scholarship (e.g., Edmans, 2014) argues institutional investors are effective monitors, and their presence is associated with lower agency costs, increased performance and pay-for-performance sensitivity, and better profitability. Market liquidity is a major factor when institutional investors choose their portfolio holdings. The ability to exit

a blockholder position also moderates activist investments. Exchange listing provides this liquidity, but not until the post-listing period.

While founders may be exiting active management of the direct listing REIT, we find strong evidence that professional investors take meaningful positions in the company once it is established on a major exchange. A univariate analysis (unreported) shows *Institutional Ownership*$_{i,t}$ (%) increases almost monotonically from zero before the listing to roughly 20% 3 years later. This effect is confirmed in our regression analysis in Table 6. Independent of size and profitability, we find the *Number of Institutional Owners*$_{i,t}$ increases drastically after joining an exchange.

One insight from our regression analysis is that the listing year dummy for the number and the ownership percentage of institutional owners is not significant. This suggests that institutional investors progressively acquire newly listed company's stock over time. In fact, many direct listing REITs see one or multiple additional institutional owners hold their stock in the years following their listing. Our coefficients suggest direct listing REITs add 1.7 additional institutional owners and that these owners collectively acquire an average of 12% of its stock following the listing. The top three most common new institutional shareholders are Vanguard, FMR Corp, and Blackrock.

Blockholder ownership mirrors the institutional ownership pattern. Very few companies have single shareholders owning at least 5% of their total shares outstanding before being listed. The rare ones that do have a blockholder have an insider owning a large chunk of their shares (often the founder). Institutional blockholder monitoring helps limit managerial rent-seeking, which is consistent with the idea that direct listing REITs are being governed more successfully following their listing.

Finally, we confirm that capital raising is not the primary reason PNLRs elect to list. The amount and proportion of debt and equity financing in the capital structure do not change materially at or immediately following the exchange listing. The coefficients for long-term debt, equity, and leverage are all insignificant in our regression setting, confirming that the capital structure of PNLRs does not change significantly. Consequently, the reported changes in governance, both internal and external, are apparently independent of capital-raising concerns.

Overall, listing companies seem to hand control over to professional managers following listing. They also enjoy broader support from institutional investors commensurate with the added liquidity engendered by having shares traded on a formal exchange. This is an important contribution because it shows that governance changes take place following listing even without material capital raises. These results are consistent with H3.

5.7 | Addressing the potential self-selection problem inherent in the decision to list

We acknowledge the decision to list is not exogenous. Although our method of using pre-listing firms as counterfactuals along with the battery of fixed effects explicitly accounts for various stationary differences between listing and nonlisting firms, it also treats the decision to list on a stock exchange as temporally exogenous. It is possible that time-varying unobservable factors explaining the changes in governance evolve contemporaneously with exchange listing.

To account for this problem, we rerun our tests using a two-stage Heckman treatment effects model.[26] The inverse mills ratio ($\lambda_{i,t}$) controls for observable and unobservable differences between treated and untreated firms that explain the selection decision to list. To achieve identification, we require an exogenous instrumental variable used in the first stage probit model that is related to the propensity to list (i.e., the relevance condition), but unrelated to our governance proxies except through its influence on the listing decision (i.e., exclusion condition). We use the dollar amount

[26] In the first stage, we use a probit regression to estimate the likelihood of a REIT to list, in accordance with Equation (1). We capture the inverse mills ratio ($\lambda_{i,t}$) from this first stage and then subsequently model the impact of listing on various governance proxies, in accordance with Equation (2). The sign of the $\lambda_{i,t}$ coefficient indicates the direction of the selection bias. Positive (negative) selection indicates the estimated coefficient for the listing effects would be biased upward (downward), absent the correction.

charged by the NYSE for a (potential) listing in a given year as our instrument. Because the listing fees impose a real cost on the issuing firm (typically around $300,000), they likely influence the decision to list. For the median firm electing to list, the listing fee represents 0.57% of FFO and 41% of net income. However, there is no obvious reason why a market-wide barrier to participate in a public market would systematically be related to a single specific firm's governance structure.

The second stage estimates reported in Table 7 confirm our initial results as our governance proxies remain highly significant. The estimate on the inverse Mills ratio suggests that self-selection might be a problem in some of our tests. However, it runs counter to our governance proxies in most of the regressions and our results remain even after taking potential self-selection into account.[27] We conclude that our primary results are not attributable to self-selection, and we continue to find support for H2 and H3. We do, however, acknowledge that there may remain some unobservable factors fundamental to the listing decision that are not accounted for by our controls, fixed effects, or our selection model.

5.8 | Propensity score matching

There remains a concern that long-run secular trends in corporate governance improvements might explain the difference between our treated and eventually treated firms. Therefore, following Rosenbaum and Rubin (1983), we assemble a control sample of counterfactual PNLRs that do not list to further confirm that our results are not due to significant pre-existing heterogeneity. To ensure the unconfounded assignment of the treatment, we match the two samples based on firm characteristics such as size, age, profitability, leverage, and dividends per share. The treatment and the control group are not statistically different for any of the variables used during the prelisting period with t-stats ranging from −1.00 to 1.48, suggesting covariate balance in our match (Atanasov & Black, 2016).[28]

Table 8 reports the results of a series of regressions analogous to that of our previous tests, but executed using our propensity-matched sample and the specification described in Equation (3):

$$\begin{aligned} \textit{Governance Proxy}_{i,t} = {} & \beta_0 + \beta_1 \textit{DL x LY}_{i,t} + \beta_2\ \textit{DL x PL}_{i,t} + \beta_3\ \textit{Listing Year}_{i,t} + \beta_4\ \textit{Post Listing}_{i,t} \\ & + \beta_5\ \textit{Direct Listing REIT}_{i,t} + \beta_6 \ln\left(\textit{Total Assets}_{i,t}\right) + \beta_7 \frac{\textit{FFO}}{\textit{Total Asset}_{i,t}} + f_i + \delta_t + \varepsilon_{i,t} \end{aligned} \tag{3}$$

Because this test sample includes both treatment firms and the untreated match firms, the variables of interest are now the interaction between the *Direct Listing REIT*$_{i,t}$ (i.e., treatment firms) and the *Listing Year*$_{i,t}$ and *Post Listing*$_{i,t}$ time dummies (abbreviated $DL \times LY_{i,t}$ and $DL \times PL_{i,t}$, respectively). They capture the change in the variable of interest for the observations in the treatment group during the listing period and the post-listing period, respectively. Results are similar to our previous tests and confirm our conclusion that listing on a public stock exchange leads to significant improvement in governance.

5.9 | Post-listing improvement in governance

Finally, we investigate whether post-listing governance improvements are influenced by the changes in stock market liquidity and institutional holdings resulting from the listing. In panel A of Table 9, we regress indicators of governance improvements on measures of illiquidity (Amihud, 2002) and institutional ownership using a matched sample of direct

[27] We follow Lennox et al. (2012) to ensure that our model is well-specified and robust to multicollinearity. Variance inflation factors (VIFs) for *Listing Year*$_{i,t}$, *Post Listing*$_{i,t}$, and the $\lambda_{i,t}$ range from 1.2 to 4.7, which is far below the typical critical value of 10. This suggests that there are no issues achieving identification in the first stage of the model.

[28] Table 5 of the Internet Appendix reports the characteristics of the treatment and control sample and the difference between group means for the prelisting period and the listing year.

TABLE 7 The impact of exchange listing while accounting for endogenous self-selection

Dependent variable	*N*	Listing year	Post listing	*F*-test	λ	Fixed effects	Overall R^2 (Within R^2)
Dual CEO	252	−1.09**	−1.09***	5.20**	1.52	Exch./Firm/Yr	31.19%
Board Size	252	0.16	0.67**	3.30*	1.64*	Exch./Firm/Yr	80.9% (45.4%)
Number of Insiders	252	0.03	−0.47***	3.62*	1.14***	Exch./Firm/Yr	59.0% (29.7%)
Number of Outsiders	252	0.03	0.86***	5.02**	0.49	Exch./Firm/Yr	79.8% (60.6%)
Board Independence	252	0.00	0.06***	5.42**	−0.09	Exch./Firm/Yr	72.2% (53.0%)
Compensation Committee	252	0.28***	0.40***	27.99***	−0.28***	Exch./Firm/Yr	69.2% (50.9%)
Nominating Committee	252	0.24***	0.41***	27.40***	−0.03***	Exch./Firm/Yr	69.3% (63.9%)
Dependent variable	***N***	**Listing year**	**Post listing**	***F*-test**	λ	**Fixed effects**	**Overall R^2 (Within R^2)**
Executive Pay Disclosure	252	1.70**	4.30***	18.68***	−11.49***	Exch./Firm/Yr	50.43%
Salary	158	1.60**	1.02*	5.18**	−1.75	Exch./Firm/Yr	57.1% (27.5%)
Equity Compensation	158	4.19**	9.31***	19.41***	−15.58**	Exch./Firm/Yr	54.0% (25.4%)
% Equity-Based	158	0.17**	0.36***	5.59**	0.42	Exch./Firm/Yr	55.0% (47.0%)
Total Compensation	158	0.66**	1.01***	9.03***	0.98	Exch./Firm/Yr	78.3% (61.8%)
Board Compensation	252	0.27**	0.83***	17.98***	0.30	Exch./Firm/Yr	88.8% (59.0%)

(Continues)

TABLE 7 (Continued)

Dependent variable	*N*	Listing year	Post listing	*F*-test	λ	Fixed effects	Overall R^2 (Within R^2)
Founder–Held	252	−0.63	**−1.63*****	**2.72***	−0.63	Exch./Firm/Yr	70.54%
Number of Institutional Owners	252	−0.37	**1.55*****	**6.00****	**−1.75***	Exch./Firm/Yr	70.4% (67.9%)
Institutional Ownership (%)	252	−0.01	**0.60*****	**37.65*****	**−1.02*****	Exch./Firm/Yr	84.7% (69.8%)

Note: This table presents a series of regressions that estimate the effect of listing while accounting for the endogenous choice to join a public stock exchange. Endogenous self-selection is controlled for by estimating Heckman treatment effects models, where the *Inverse Mills Ratio* (λ) is obtained from a first stage Probit model similar to Equation (1) that predicts listing. For continuous variables, we run an OLS specification. For binary variables such as *Dual CEO*, *Executive Pay Disclosure*, and *Founder–Held*, we run a logit regression. Model: $Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ Listing\ Year_{i,t} + \beta_2\ Post\ Listing_{i,t} + \beta_3\ ln(Total\ Assets_{i,t}) + \beta_4\ FFO/Total\ Assets_{i,t} + \beta_5\ Inverse\ Mills\ Ratio_{i,t} + Exchange_{i,t} + f_i + \delta_t + \varepsilon_{i,t}$ where *Listing Year* is the coefficient of an indicator variable that is equal to one if the observation occurs during the listing-year, zero otherwise. *Post Listing* is the coefficient of an indicator variable that is equal to one if the observation occurs after the listing event (listing-year excluded), zero otherwise. We include a vector of control variables including the log of total assets and the ratio of FFO to total assets, *Exchange* (i.e., NYSE, NASDAQ, and AMEX) fixed effects, firm (f_i) fixed effects, and year (δ_t) fixed effects. *F-test* reports the value of the test that the two dummies are zero jointly. We report overall R^2. Within R^2, values are also reported in parentheses for OLS regressions. All variables are defined in Appendix 1.

***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

TABLE 8 The impact of exchange listing using a propensity score matched sample

Panel A: Board and committee structure						
Dependent variable	***N***	**DL × LY**	**DL × PL**	***F*-test**	**Fixed effects**	**Overall R^2 (Within R^2)**
Dual CEO	449	**−1.86*** **	**−1.63** **	**9.29*** **	Firm/Yr	79.05%
Board Size	449	0.14	**1.08*** **	**4.76** **	Firm/Yr	78.9% (39.5%)
Number of Insiders	449	−0.24	**−0.64*** **	**6.36** **	Firm/Yr	70.9% (22.6%)
Number of Outsiders	449	**0.38***	**1.73*** **	**28.87*** **	Firm/Yr	81.7% (51.1%)
Board Independence	449	**0.04***	**0.13*** **	**19.75*** **	Firm/Yr	76.6% (43.8%)
Compensation Committee	449	**0.30*** **	**0.44*** **	**16.63*** **	Firm/Yr	80.5% (44.5%)
Nominating Committee	449	**0.30*** **	**0.46*** **	**19.33*** **	Firm/Yr	81.9% (53.7%)
Panel B: CEO and board compensation						
Dependent variable	***N***	**DL × LY**	**DL × PL**	***F*-test**	**Fixed effects**	**Overall R^2 (Within R^2)**
Executive Pay Disclosure	449	**1.03***	**3.53*** **	**14.18*** **	Firm/Yr	79.88%
Salary	199	−0.05	−0.43	0.04	Firm/Yr	67.7% (35.1%)
Equity Compensation	199	2.36	**4.86***	**1.76***	Firm/Yr	61.2% (48.1%)
% Equity-Based	199	0.15	**0.30*** **	**9.14*** **	Firm/Yr	59.2% (41.7%)
Total Compensation	199	**1.57*** **	**1.58*** **	**23.96*** **	Firm/Yr	77.7% (71.9%)
Board Compensation	449	**0.27** **	**1.13*** **	**10.97** **	Firm/Yr	74.7% (45.5%)

(Continues)

TABLE 8 (Continued)

Panel C: Ownership						
Dependent Variable	***N***	**DL × LY**	**DL × PL**	***F*-test**	**Fixed Effects**	**Overall R^2 (Within R^2)**
Founder–Held	449	**−0.88***	**−1.94*****	**8.76****	Firm/Yr	80.23%
Number of Institutional Owners	449	−0.01	**2.44*****	**109.72*****	Firm/Yr	76.0% (64.9%)
Institutional Ownership (%)	449	0.06	**0.85*****	**182.42*****	Firm/Yr	84.6% (66.0%)

Note: This table presents a series of regressions that estimate the listing effect on corporate governance while accounting for heterogeneity between listing and nonlisting firms by using a propensity score matched sample control group. For binary variables such as *Dual CEO*, *Executive Pay Disclosure*, and *Founder-Held*, we run a logit regression. Model: $Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ DL \times LY_{i,t} + \beta_2\ DL \times PL_{i,t} + \beta_3\ Listing\ Year_{i,t} + \beta_4\ Post\ Listing_{i,t} + \beta_5\ Direct\ Listing\ REIT_{i,t} + \beta_6\ ln(Total\ Assets_{i,t}) + \beta_7\ FFO/Total\ Assets_{i,t} + f_i + \delta_t + \varepsilon_{i,t}$ where *Listing Year* is the coefficient of an indicator variable that is equal to one if the observation occurs during the listing-year, zero otherwise. *Post Listing* is the coefficient of an indicator variable that is equal to one if the observation occurs after the listing event (listing-year excluded), zero otherwise. $DL \times LY_{i,t}$ is the interaction between the *Direct Listing REIT* and *Listing Year* terms. $DL \times PL_{i,t}$ is the interaction between the *Direct Listing REIT* and *Post Listing* terms We include a vector of control variables including the log of total assets and the ratio of FFO to total assets, firm (f_i) fixed effects, and year (δ_t) fixed effects. *F-test* reports the value of the test that the $DL \times LY$ and $DL \times PL$ variables are zero jointly. For readability, we report the coefficients of *PT* and *TT* only. We report overall R^2. Within R^2, values are also reported in parentheses for OLS regressions. All variables are defined in Appendix 1.

***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

TABLE 9 Post listing improvements in governance

Panel A: Post listing improvements in governance−−−all post-listing years							
Dependent variable	***N***	**DL × Illiquidity**	**DL × IO%**	**Illiquidity**	**Institutional ownership %**	**Direct listing**	**Overall R^2 (Within R^2)**
Board Independence	235	**−0.03*****	**0.02***	−0.01	0.01	0.02	15.7% (4.11%)
Separate Chair	235	**−0.04****	0.12	−0.03	0.14***	0.14	14.91%
Professionally Managed	235	0.01	**0.07****	0.00	0.05*	0.05	13.56%
Executive Pay Disclosure	235	**−0.32*****	**0.14***	0.01	0.02	0.05	18.66%
% Equity-Based	189	**−1.55*****	**0.20****	−0.50**	0.08***	0.14	16.0% (13.5%)
Panel B: Post listing improvements in governance at listing							
Dependent variable	***N***	**DL × Illiquidity**	**DL × IO%**	**Illiquidity**	**Institutional ownership %**	**Direct listing**	**Overall R^2 (Within R^2)**
Board Independence	69	**−0.05*****	−0.07	−0.01**	0.01	0.02	42.7% (12.1%)
Separate Chair	69	**−0.02***	**0.71****	0.02	−0.07	0.02	43.4%
Professionally Managed	69	−0.01	**0.27***	0.01	0.12***	0.12	20.4%
Executive Pay Disclosure	69	**−0.33*****	−0.53	0.01	0.02	0.06	28.6%
% Equity Based	49	**−1.79*****	0.92	−1.79***	−0.05	0.16	52.4% (30.7%)
Panel C: Post listing improvements in governance 1 year after listing							
Dependent variable	***N***	**DL × Illiquidity**	**DL × IO%**	**Illiquidity**	**Institutional ownership %**	**Direct listing**	**Overall R^2 (Within R^2)**
Board Independence	62	**−0.10****	**0.08***	−0.01	−0.02	−0.01	45.39% (24.4%)
Separate Chair	62	**−0.02***	−0.23	−0.00	0.33***	−0.02	34.2%
Professionally Managed	62	0.22	**0.51***	−0.01	−0.10	−0.14	32.8%
Executive Pay Disclosure	62	**−0.39*****	**0.64***	−0.03	−0.07	−0.02	59.9%
% Equity Based	51	**−1.05*****	**0.85*****	0.71	0.19***	−0.06	51.5% (28.37%)

(Continues)

TABLE 9 (Continued)

Panel D: Post listing improvements in governance 2 years after listing							
Dependent variable	***N***	**DL × Illiquidity**	**DL × IO%**	**Illiquidity**	**Institutional ownership %**	**Direct listing**	**Overall R^2 (Within R^2)**
Board Independence	55	**−0.05***	0.07	0.06***	0.06***	0.06	46.8% (24.8%)
Separate Chair	55	−0.01	**0.09***	−0.07	0.03*	−0.08	32.2%
Professionally Managed	55	−0.01	0.03	0.02	0.01	0.05	19.0%
Executive Pay Disclosure	55	0.15	**0.13***	−0.04	0.01	0.11	37.2%
% Equity Based	46	−1.18	**0.52*****	−0.25	0.21**	0.33**	49.7% (27.7%)
Panel E: Post listing improvements in governance 3 years after listing							
Dependent variable	***N***	**DL × Illiquidity**	**DL × IO%**	**Illiquidity**	**Institutional ownership %**	**Direct listing**	**Overall R^2 (Within R^2)**
Board Independence	49	−0.74	**0.08***	0.04*	0.05**	0.03	31.9% (18.6%)
Separate Chair	49	**−0.15***	−0.19	0.04*	0.20***	−0.09	35.2%
Professionally Managed	49	−2.07	**0.04***	−0.07*	0.10*	−0.14	45.7%
Executive Pay Disclosure	49	−0.31	**0.16****	0.04*	0.30**	0.05	32.8%
% Equity Based	43	**−5.02****	**0.35***	0.15	0.04	0.03	51.6% (33.7%)

Note: This table presents a series of regressions that estimate the impact of liquidity and institutional ownership on post listing improvements using the following regression model $Change\ in\ Governance\ Proxy_{i,t} = \beta_0 + \beta_1\ DL\ x\ Illiquidity_{i,t} + \beta_2\ DL\ x\ IO\%_{i,t} + \beta_3\ Illiquidity_{i,t} + \beta_4\ Institution\ Ownership\ \%_{i,t} + \beta_5\ Direct\ Listing\ REIT_i + \beta_6\ ln(Total\ Assets_{i,t}) + \beta_7\ FFO/Total\ Assets_{i,t} + \delta_t + \varepsilon_{i,t}$ where *Direct listing* is a variable equal to one if the firm a direct listing firm. We include a vector of control and year(δ_t) fixed. Within R^2, values are reported in parentheses for OLS regressions. All variables are defined in Appendix 1. Panel A reports the results using the pooled sample. Panels B through E report post-listing improvements in governance at listing, and for the 3 years following. A decrease in *Dual CEO* (i.e., *Separate Chair*) and *Founder-held* (i.e., *Professionally Managed*) is an improvement in governance.

***, **, and * denote the significance of coefficients at the 1%, 5%, and 10% levels, respectively, computed using robust (Rogers, 1994) firm-year clustered standard errors.

listed REITs and existing public REITs for up to 3 years after joining a formalized exchange using the specification in Equation (4).[29]

$$\begin{aligned} \textit{Governance Improvement}_{i,t} &= \beta_0 + \beta_1 DL \times \textit{Illiquidity}_{i,t} + \beta_2 DL \times IO\%_{i,t} + \beta_3 \textit{Illiquidity}_{i,t} \\ &+ \beta_4 \textit{Institutional Ownership }\%_{i,t} + \beta_5 \textit{ Direct Listing REIT}_{i,t} + \beta_6 \ln\left(\textit{Total Assets}_{i,t}\right) \\ &+ \beta_7 \frac{FFO}{\textit{Total Asset}_{i,t}} + \delta_t + \varepsilon_{i,t} \end{aligned} \tag{4}$$

The primary variables of interest are the interactions between *Direct Listing REIT*$_{i,t}$ and the *Illiquidity*$_{i,t}$ and *Institutional Ownership %*$_{i,t}$ variables (abbreviated $DL \times \textit{Illiquidity}_{i,t}$ and $DL \times IO\%_{i,t}$, respectively).

Panel A demonstrates improvements in board independence, CEO duality, executive pay disclosure, and equity-based compensation are more likely when the direct listed REIT enjoys greater stock liquidity (i.e., lower Amihud illiquidity values). Higher institutional investment is associated with greater board independence, professional management, better pay disclosure, and a greater reliance on equity-based pay. In panels B through E, we isolate the year of the governance improvement during the listing year as well as 1-, 2-, and 3-years post-listing. Liquidity improvements seem most influential around the listing year while institutional ownership is more influential after the firm is listed, but we caution the reader as the pattern is not very strong. Collectively, the results are broadly consistent with H2 and H3.

6 | CONCLUSIONS

We shed light on the impact exchange listing has upon public company governance. Some question whether successful direct listings will encourage smaller, riskier firms to list without undergoing the traditional IPO process that involves certifying investment banks. Our paper may allay such fears.

We use the unique laboratory of direct listings by PNLRs as the closest available analog to industrial firms engaging in this practice. We present evidence that firms directly listing on an exchange are indeed better governed and of higher quality than their counterparts that elect not to list. Because exchange listing legally and reputationally bonds the company to higher corporate governance standards, these high-quality management teams can use public listings to assure investors they will not face future expropriation. We find listing REITs are larger, more profitable, and better governed than firms who do not join public exchanges. In contrast, poorly governed firms paying unsustainable dividends out of capital eschew exchange membership.

We find governance quality improves after joining an exchange and does so outside the bounds of exchange requirements. This is consistent with reputational bonding theories advanced in the cross-listings literature (Burns et al., 2007; Coffee, 2002; Siegel, 2005). Indeed, following their listing, firms attract more independent, possibly more experienced directors. Almost every firm discloses executive compensation information and features fully independent compensation and nominating committees following their transition to a public exchange. Director and CEO compensation doubles post-listing while founders hand over control to professional managers. Institutional investors' holdings surge post-listing. Prelisting, the PNLRs we study have almost no blockholder ownership, but institutional investors own roughly 20% of the newly listed firms' stock. Several of the governance improvements we observe in our data are directly attributable to the increase in stock market liquidity and institutional ownership achieved post-listing.

Overall, these findings are consistent with the notion that exchange listing has a positive effect on the quality of corporate governance. These findings should come as reassurance to investors concerned that direct listing on a stock exchange, outside the traditional IPO process, is risky or that it invites the exploitation of unsophisticated investors.

[29] We perform a 2-to-1 match based on size, age, profitability, leverage, and dividends per share. We successfully find 44 unique match firms, for a total of 69 treatment and control observations each year. Note, there is attrition in the number of observations as the listed REITs and matching firms exit the sample for various reasons (e.g., acquisitions).

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SUPPORTING INFORMATION

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

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APPENDIX 1 A.1: Variable definitions

Variable name	Variable definition
% Equity-based	The percentage of the total CEO compensation package that is equity-based.
Blockholder Ownership	Percentage of total shares outstanding held by blockholders.
Board Compensation	The log of the dollar value of the total compensation of the board.
Board Size	The total number of directors on the board.
Board Independence	Percentage of independent directors on the board.
CEO Bonus	The log dollar value of the cash performance-based part of the CEO compensation package.
CEO Equity Compensation	The log dollar value of CEO compensation paid in equity through stock options.
CEO Nonequity Compensation	The log dollar value of CEO compensation earned through a nonequity plan, that is awards that are nonstock or equity.
CEO Other Compensation	The log dollar value of perquisite and other benefits provided to the CEO.
CEO Salary	The log dollar value of the base salary of the CEO.
CEO Total Compensation	The log dollar value of the entire CEO compensation package.
Compensation Committee	The percentage of independent members (as defined by NYSE listing standards) in the Compensation Committee.
Development REIT	Indicator variable equal to one if the REIT focuses on development/redevelopment projects, zero otherwise.
Dividends Per Share	Total amount of dividend paid per share.
Dual CEO	Indicator variable equal to one if the CEO is also chairman of the board, zero otherwise.
Executive Pay Disclosure	Indicator variable equal to one if CEO compensation info is available, zero otherwise.
Extractor	Indicator variable equal to one if the dividends paid are greater than FFO, zero otherwise.
FFO/Total Assets	The ratio of Funds From Operations over Total Assets.
Founder-Blockholder	Indicator variable equal to one if the "founder" of the firm owns at least 5% of the shares outstanding, zero otherwise.
Founder-Board	Indicator variable equal to one if the "founder" of the firm is a member of the board.
Founder-CEO	Indicator variable equal to one if the "founder" of the firm is also the CEO, else zero.
Founder-Held	Indicator variable equal to one if the "founder" of the firm is an executive, member of the board, or holds at least 5% of the stock and zero otherwise.
Governance Compliant	Indicator variable equal to one for REITs whose existing corporate governance structure complies with NYSE listing standards, zero otherwise.
Governance noncompliant	Indicator variable equal to one for REITs whose existing corporate governance structure does *not* comply with NYSE listing standards, zero otherwise.

(Continues)

Variable name	Variable definition
Insider Ownership	Percentage of the total shares outstanding held by executives and the board.
Institutional Ownership	Percentage of total shares outstanding held by institutional investors.
J-Curve Index	Indicator variable ranging from zero to three, computed as the sum of *Professionally Managed*, *Turnaround Profits*, and *Development REIT* indicator variables.
Leverage	The percentage of debt in a REIT capital structure, computed as debt over total assets.
Listing Year	Indicator variable equal to one if the observation occurs the year of the listing.
Nominating Committee	The percentage of independent members in the Nominating Committee.
Nonextractor	Indicator variable equal to one if the dividends paid are lower than FFO, zero otherwise.
Number of Blockholders	Number of individuals or entities owning more than 5% of the total shares outstanding.
Number of Independent Blockholders	Number of independent investors owning at least 5% of the shares outstanding.
Number of Insiders	Percentage of the board consisting in dependent directors.
Number of Institutional Investors	Number of institutional investors owning at least 5% of the shares outstanding.
Number of Outsiders	Percentage of the board consisting of independent directors.
Post Listing	Indicator variable equal to one if the observation occurs after the year of the listing (listing year excluded), zero otherwise.
Presence of Blockholder	Indicator variable equal to one if at least one investor owns more than 5% of the total shares outstanding, zero otherwise.
Professionally Managed	Indicator variable equal to one if the firm is professionally managed (not founder-held), zero otherwise.
Rent Seeker Index	Indicator variable ranging from zero to two, computed as the sum of *Governance Noncompliant* and *Extractor* indicator variables.
Rent Seeker to J-Curve Spectrum (RSJCS)	Indicator variable ranging from zero to five, computed as the sum of *Professionally Managed*, *Turnaround Profits*, *Development REIT*, *Governance Compliant*, and *Nonextractor* indicator variables.
Separate Chair	Indicator variable equal to one if the CEO is not also chairman of the board, zero otherwise.
Extreme Extractor	Indicator variable equal to one if the firm qualifies as an *Extractor* and is *Governance Noncompliant*, zero otherwise.
Total Assets	Dollar value of the total assets of the firm.
Turnaround Profits	Equal to one if the firm's FFO/TA is larger in the final year the firm appears in the sample than the first year it appears.
Well Governed	Indicator variable equal to one if the firm qualifies as a *Nonextractor* and is *Governance Compliant*, zero otherwise.