

Decoding ESG in Private Equity: Disclosures, Labels, and Performance Outcomes

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Abstract

This paper investigates how ESG disclosure and labeling relate to private equity fund performance. Using a global dataset that covers 76 ESG management indicators across multiple dimensions for 1,437 funds, we document overall low ESG transparency with substantial heterogeneity among general partners (GPs). Funds managed by GPs in the highest ESG disclosure quartile underperform those in the lowest by 4.1 percentage points in NetIRR, 0.43x in TVPI, and 0.18x in DPI, with the effect concentrated in buyout funds. ESG disclosure is unrelated to fund-level ESG risk-taking, and top-quartile disclosers hold portfolios with slightly higher impact potential. However, their underperformance persists after controlling for both ESG risk and impact characteristics, suggesting that these factors do not explain the observed return differences. Lastly, we find no systematic performance differences between ESG-labeled and non-labeled funds.

Keywords: Private Equity, Fund Performance, ESG, Disclosure, Risk, Impact, Greenwashing

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1 INTRODUCTION

Environmental, social, and governance (ESG) factors are now routinely viewed by both general partners (GPs) and limited partners (LPs) as central to value creation, risk mitigation, and long-term performance (Entraygues & Shandal, 2024; Lino et al., 2022). With \$11.6 trillion in assets under management globally, private equity (PE) is not only a major capital allocator but also a powerful force in shaping the sustainability trajectory across its portfolio companies (Preqin, 2025). GPs emphasize the potential of ESG integration to reduce operating costs (e.g., through the adoption of low-cost renewable energy), lower employee turnover (e.g., via workforce ownership participation), mitigate downside risks (e.g., regulatory fines), and support revenue expansion (e.g., through new circularity value pools, green premiums, or changing consumer preferences) (Entraygues & Shandal, 2024). These effects contribute to operational improvements and higher exit valuations, particularly in competitive sale processes where ESG credentials can serve as a differentiator. Simultaneously, LPs have steadily increased pressure for standardized ESG reporting. In 2022, 80% of LPs reported plans to request more ESG disclosures from GPs over the next three years (Lino et al., 2022). However, the strength of ESG expectations varies across regions: 79% of Western European LPs believe that ESG policies enhance long-term financial returns, compared to 60% of LPs in Asia-Pacific and only 35% in North America (Jordan et al., 2024).

ESG-labeled fundraising has surged, with the number of PE funds launched with an ESG label increasing from 13 in 2010 (\$2.6 billion AUM) to 167 in 2024 (\$60.2 billion AUM) (Preqin, 2025). While institutional investors have historically driven ESG adoption, GPs increasingly view the private wealth channel, where PE penetration remains low, as the next significant growth opportunity (MacArthur et al., 2025; Seru, 2025). To tap into this segment, many GPs are expanding their ESG-labeled product offerings, recognizing that individual investors are particularly responsive to simplified ESG signals such as fund labels and ratings (Hartzmark & Sussman, 2019).

However, despite these advances, ESG integration in PE remains difficult to evaluate. Limited mandatory disclosure, voluntary reporting standards, and an absence of standardized ESG ratings at the portfolio company level characterize the industry. Blind-pool fund structures further complicate assessment, as investors must commit capital before knowing the actual portfolio and instead rely on a GP's ESG policies and historical track record. While some LPs engage in direct dialogue during due diligence, many screen GPs at scale using publicly

available ESG disclosures, which thus serve as both a tool for differentiation and a potential signal of ESG capability (UNPRI, 2020). Yet these disclosures remain inconsistent and often superficial. Markarian et al. (2024) report that 58% of the top 100 U.S. PE firms provide no ESG-related information. Böni et al. (2024) find that ESG transparency across a global sample of 3,765 PE firms averages just 17% and is highest for governance and lowest for environmental indicators. Even among disclosing firms, ESG content often focuses on firm-level policies (i.e., policies at the GP level) rather than asset-level integration (i.e., portfolio companies).

The regulatory landscape for ESG disclosure in PE is evolving but remains uneven. Historically, PE funds have faced relatively few mandatory ESG disclosure requirements. However, recent years have seen increased momentum, particularly in Europe, where the introduction of the Sustainable Finance Disclosure Regulation (SFDR), the EU Taxonomy, and the Corporate Sustainability Reporting Directive (CSRD) has created a more formalized ESG reporting regime for fund managers and their portfolio companies. In the United States, regulatory developments have more recently stalled at the federal level following the 2024 presidential elections, including the SEC’s decision to stop defending its proposed Climate-Related Disclosures for Investors rules (SEC, 2025). Nevertheless, ESG regulation continues to advance at the state level, most notably in California through SB 253 and SB 261 (as amended by SB 219)¹. Although regional differences persist, recent developments suggest a broader convergence toward enhanced ESG disclosure requirements in private markets, driven by regulatory initiatives and evolving investor expectations.

Given this backdrop, public ESG disclosure has emerged as a critical focal point. For LPs, it is one of the few scalable ways to assess a GP’s ESG practices. At the same time, for GPs, it is increasingly a competitive necessity, especially in the context of fundraising. Yet while the volume of disclosure is rising, its informational value remains uncertain (Abraham et al., 2024).

Using a novel dataset of 76 ESG management indicators from Preqin, we construct a granular measure of ESG disclosure standards across 11,008 GPs globally. The dataset is built on standardized indicators derived from widely used industry frameworks (e.g., PRI, ILPA)

¹ California has introduced two key climate disclosure laws affecting large companies. The Climate Corporate Data Accountability Act (SB 253) requires firms operating in the state with over USD 1 billion in annual revenue to publicly report their greenhouse gas emissions. The Climate-Related Financial Risk Act (SB 261) mandates that companies with more than USD 500 million in annual revenue disclose material climate-related financial risks. Both laws apply to entities doing business in California, regardless of where they are headquartered, and were enacted in 2023 with phased implementation beginning in 2026.

and multiple public sources, enabling multi-dimensional analysis of disclosure across ESG pillars and governance levels. We link these disclosure measures to fund-level performance data for 1,437 funds, as well as ESG risk exposures and impact potential of portfolio companies. Our analysis proceeds in three parts: First, we test whether ESG disclosure is positively or negatively associated with fund performance and whether this relationship varies across disclosure levels. Second, we examine whether disclosure aligns with fund-level ESG risk and impact potential, and whether differences in risk-taking explain the performance differences of more transparent GPs. Third, we examine whether fund performance is related to ESG labels, distinguishing between different label types (e.g., *ImpactLabel* versus *SFDR8Label*).

Our analysis highlights several key findings. First, we document that ESG disclosure rates in PE remain low overall, with a global average of 8.4% and substantial variation across the 11,008 GPs. Disclosure rates are highest among European firms (22.3%), larger GPs (18.5%), listed GPs (37.7%), and buyout-focused strategies (18.6%), while disclosure among venture capital firms (5.0%) and GPs in Asia (3.0%) remains markedly lower. Across the ESG pillars, governance-related disclosures are the most prevalent (11.3%), followed by social (7.0%) and environmental (3.8%) indicators. Similarly, disclosure rates exhibit a clear ordering, with the firm-level averaging 9.6%, followed by the portfolio-level at 9.1%, and the asset-level at 5.6%. However, among the funds in the performance sample, portfolio-level disclosures exceed those at the firm level. Second, we find that funds managed by GPs in the highest ESG disclosure quartile underperform those in the lowest quartile by approximately 4.1 percentage points in *NetIRR*, 0.43x in *TVPI*, and 0.18x in *DPI*. Third, we assess ESG risk exposure and impact potential and find that ESG disclosure is not related to overall fund-level ESG risk. Top-quartile disclosers hold portfolios with slightly higher expected impact potential, yet their underperformance persists after controlling for both ESG risk and impact potential. Fourth, we examine the relationship between ESG labels and fund performance and find no systematic performance differences between labeled and non-labeled funds. These results suggest that ESG disclosure and labeling are not uniformly predictive of financial outcomes and highlight the importance of distinguishing between different dimensions of disclosure and labeling when interpreting ESG signals.

Our findings contribute to the literature in several ways. First, to the best of our knowledge, we are the first to use Preqin's 2024 update of its ESG disclosure dataset, which captures 76 standardized management indicators across ESG pillars and governance levels from multiple

frameworks (e.g., PRI, ILPA) and public sources (e.g., firm websites, IAPD filings), allowing consistent global comparisons of the scope of ESG disclosures among GPs across diverse strategies, geographies, and sizes. Second, we add to the growing literature on the relationship between ESG disclosure and fund performance, offering evidence that higher ESG disclosure is associated with lower returns, particularly among the most transparent GPs. We further disentangle this relationship by decomposing ESG disclosure into its constituent pillars (environmental, social, governance) and governance levels (firm-, portfolio-, asset-level), allowing us to identify which dimensions are most closely linked to performance. Third, we provide new evidence on whether ESG disclosure reflects substantive ESG integration by linking disclosure to fund-level ESG risk and impact potential, and testing whether differences in ESG risk-taking help explain the observed performance patterns. Fourth, we extend the growing literature on fund labeling regimes to private markets by providing early evidence on the relationship between ESG fund labels and financial performance in private equity.

The remainder of this paper is organized as follows. Section 2 reviews the related literature. Section 3 describes the data and variable construction. Section 4 presents our empirical strategy and results. Section 5 concludes.

2 LITERATURE REVIEW

A growing body of research examines how ESG considerations are integrated into private market investment decisions. We contribute to four related strands of literature: (1) ESG disclosures in private equity; (2) the role of ESG disclosure as a potential performance signal; (3) the relationship between ESG disclosure and ESG risk-taking; and (4) the informational value of ESG labels. Each stream contributes to our understanding of whether ESG disclosure and labelling reflect meaningful integration or are instead used strategically to attract capital in an opaque market setting.

While ESG disclosure has been widely studied in public markets, often in the context of reducing information asymmetries and improving capital market outcomes (Christensen et al., 2021; Lagasio & Cucari, 2019), empirical evidence from private markets remains limited and has only recently begun to accumulate. Markarian et al. (2024) find that 58% of the top 100 U.S. private equity firms disclose no ESG-related information, and that those who do often rely on low-accountability frameworks, raising concerns around greenwashing. Böni et al. (2024) provide global evidence from 3,765 PE firms and document that ESG transparency remains low, averaging just 17%, and declines from the firm-level to the portfolio- and asset-levels. They show that variation in ESG disclosure is closely linked to the characteristics of the investor base, particularly the share of foundations, public and private pension funds. This suggests that public transparency remains responsive to LP demand even in a setting with private communication channels. Using a dictionary-based measure of voluntary ESG disclosures on historical websites, Abraham et al. (2024) also highlight the importance of LP pressure, showing that GPs significantly increase ESG disclosures when exposed to ESG-oriented investors. They document a strong and steady upward trend in ESG disclosure over the past two decades and find that social topics have become as prominent as environmental topics. Notably, they show that ESG disclosures are positively associated with ESG outcomes at the portfolio company level, suggesting that disclosures align with the real-world actions of PE firms. Complementing this, Campbell et al. (2024) use regulatory SEC filings (Form ADV) to show that environmental ESG disclosures, particularly when framed negatively, are associated with reduced fundraising success, highlighting how disclosure content and tone can materially influence investor behavior. Similarly, Jiang et al. (2025) find that mandatory disclosure of misconduct, though not ESG-specific, results in lower fundraising ability for GPs, with the effect strongest among public pension funds and LPs in democratic states.

Second, we contribute to the literature linking ESG disclosure to private equity fund performance, motivated by the central role of performance in driving fundraising outcomes. A large body of research has consistently shown that past fund performance is the primary determinant of a GP's ability to raise new capital (Barber & Yasuda, 2017; Gompers et al., 1998; Kaplan & Schoar, 2005). Performance signals are particularly salient in private markets, where information asymmetries are substantial and investors rely heavily on track records to guide allocation decisions. At the same time, rising investor demand for sustainable investing has introduced ESG disclosure as a potentially complementary or strategic signal. Lino et al. (2022) report that 50% of limited partners view ESG as additive to performance, and that ESG investment policies now affect over 75% of global private equity assets under management. A large body of literature finds positive associations between ESG practices and firm performance in public markets. However, the link between ESG disclosure and financial performance outcomes remains mixed for existing investor studies (Atz et al., 2023). Because most ESG disclosures are voluntary, unaudited, and unstandardized, they may not necessarily reflect actual performance or risk exposure (Kim & Yoon, 2023). This disconnect is particularly salient in private equity, where ESG disclosure remains largely voluntary and heterogeneous, yet is increasingly scrutinized by investors. Böni et al. (2024) provide early evidence that highly transparent GPs tend to underperform, while their portfolios do not exhibit systematically better ESG risk or impact profiles, suggesting ESG disclosure may sometimes be used strategically by underperforming managers. This aligns with signaling theory, which suggests that in opaque settings such as private equity, voluntary disclosure can serve as a substitute signal when past performance is weak or underlying ESG integration is difficult to observe directly. To examine this relationship in greater depth, we extend Böni et al.'s analysis by employing a more comprehensive and granular ESG disclosure framework, tracking 76 ESG management indicators across multiple disclosure channels and categorizing them by ESG pillar and governance level. This enables us to assess whether differences in ESG disclosure are systematically associated with fund performance, and whether specific dimensions of disclosure, such as those across ESG pillars or governance levels, are differentially related to investment outcomes. This approach is further motivated by Markarian et al. (2024), who find that IRRs do not predict overall ESG scores but are positively associated with higher social scores. This suggests that ESG disclosure pillars may also relate differently to fund performance and that aggregating across them could obscure important heterogeneity.

Third, we examine how ESG disclosure relates to fund-level ESG risk and impact potential and whether disclosure signals how GPs approach ESG integration. In private equity, where ESG outcomes are often difficult to observe at scale, ESG risk offers a more feasible and decision-relevant lens. This focus is consistent with investor preferences: McCahery et al. (2022) report that 48% of institutional investors rank investment risk as their first or second most important reason for considering ESG, while Lino et al. (2022) show that 67% of LPs would walk away from a deal due to reputational concerns and 53% if a GP shows no desire to improve ESG practices. Our analysis connects to three related streams of literature: ESG risk materiality and performance (Ahn et al., 2024; Khan et al., 2016), ESG disclosure and signaling (Christensen et al., 2021; Khan, 2022), and greenwashing (Kathan et al., 2025; Kleffell & Muck, 2023). Building on Böni et al. (2024), who show that the relationship between ESG transparency and fund performance depends on the level of portfolio ESG risk, we examine this connection more directly by testing whether ESG disclosure is systematically associated with fund-level ESG risks. Unlike their approach, which aggregates ESG risk across all portfolio companies managed by a GP, we adapt the risk measure to the fund level to better align with performance outcomes. Böni et al. (2024) find that highly transparent GPs tend to underperform, particularly when their portfolios exhibit elevated ESG risk, suggesting that disclosure may serve as a strategic signal rather than reflect effective ESG risk management. In contrast, Hsiung et al. (2024) report that low-transparency funds perform worse than high-transparency funds, but ESG risk exposure does not explain this difference. They also find no systematic correlation between ESG risk and ESG disclosure. These diverging findings underscore that the relationship between ESG disclosure, fund performance, and fund-level ESG risk and impact potential remains insufficiently studied, and we contribute by jointly analyzing these dimensions. We further disaggregate ESG risk and disclosure by ESG pillar to test whether different dimensions of ESG disclosure vary in their relationship with performance and risk-taking. This distinction is important in light of greenwashing concerns: high ESG disclosure may reflect proactive risk management in one pillar while serving as a symbolic signal in another, or may be used more broadly to compensate for weaker fundamentals or elevated risk exposure by appealing to LPs' non-pecuniary preferences. Supporting this, Campbell et al. (2024) show that PE investors are uniformly averse to disclosed environmental risks, particularly when framed negatively. In addition, Cole et al. (2023) find that impact-oriented funds, typically more transparent, are more likely to invest in disadvantaged markets and nascent industries, suggesting that ESG-oriented strategies may be associated with distinct risk-return profiles.

Finally, we extend the emerging literature on ESG labels in private equity by providing early evidence on their relationship with fund performance which is an increasingly relevant topic as ESG-labeled products gain traction². Given the institutional composition of private equity markets, ESG labels have traditionally played a limited role in investment decision-making. Most LPs possess the resources to conduct detailed due diligence, interpret complex disclosures, and request bespoke sustainability reporting, reducing reliance on simplified labeling frameworks. However, this dynamic is beginning to shift, as private wealth is projected to account for a growing share of total fundraising, spurred by the expansion of retail distribution channels among large GPs (Gara & Politi, 2025; MacArthur et al., 2025; Preqin, 2024). As private markets become more accessible to individual investors, who tend to place greater weight on standardized labels, understanding the signaling function and informational value of ESG labels assumes growing importance. In public markets, a robust body of evidence shows that ESG labels strongly influence investor behavior: Hartzmark and Sussman (2019) document \$24 billion in inflows to high-sustainability funds and \$12 billion in outflows from low-rated funds following Morningstar's ESG rating release. However, they find no evidence that high-sustainability funds outperform their low-sustainability counterparts. Similarly, Becker et al. (2022) find that introducing SFDR labels in Europe led to improvements in ESG scores and significant inflows into Article 8 and 9 funds. While ESG-labeled funds tend to exhibit stronger sustainability attributes (Kolling & Busch, 2025), their risk-adjusted performance is generally indistinguishable from non-labeled funds (Hornuf & Yüksel, 2024; Renneboog et al., 2008). In private markets, research on the performance of ESG-labeled funds remains limited and has thus far focused primarily on impact-labeled strategies, with mixed evidence regarding their financial outcomes. Barber et al. (2021) find that impact funds underperform traditional VC funds by 4.7 percentage points, suggesting investors accept lower returns in exchange for social value. By contrast, Cole et al. (2020) report that the International Finance Corporation's impact portfolio outperformed public benchmarks by 15% over several decades³. Jeffers et al. (2024) show that impact funds generate lower overall returns than matched non-impact funds, but are significantly less exposed to public market risk (i.e., have lower beta). After adjusting for market risk, impact funds perform comparably to other private

² According to Preqin (2025), fundraising activity by ESG-labeled private equity funds increased nearly twenty-threefold between 2010 and 2024, rising from USD 2.6 billion raised by 13 funds in 2010 to USD 60.2 billion raised by 167 funds in 2024.

³ Cole et al. (2020) report a PME of 1.15 for the IFC's impact portfolio since 1961, which is comparable to the median performance of buyout funds in advanced economies (PME = 1.16) and exceeds that of venture capital funds (PME = 1.02) between 1984 and 2008, as reported by Harris et al. (2014).

market strategies. These divergent findings underscore the inconclusive relationship between impact orientation and financial performance. Beyond impact funds, Gloria et al. (2025) provide one of the few analyses of regulatory ESG labels in real estate private equity, finding that Article 8 real estate funds do not underperform Article 6 funds in the initial phase and show earlier positive returns. However, Article 8 funds slightly underperform over the whole sample period, potentially due to a more conservative risk-return profile or timing differences in capital gains realization. These findings motivate our analysis of ESG labels in private equity, which remains scarce despite growing investor reliance on such labels.

3 DATA SAMPLE

3.1 Data

This paper uses a Preqin dataset on ESG disclosures and ESG risk and matches it with fund performance data and detailed information on funds and GPs from Preqin. Preqin initially published its first version of ESG disclosure data in 2022 (Böni et al., 2024; Noh & Park, 2024) and updated its ESG disclosure data from 37 tracked management indicators to 76 management indicators for GPs in 2024. Preqin has been identified as the leading data provider for private equity by numerous academic studies (Barber et al., 2021; Barber & Yasuda, 2017; Cavagnaro et al., 2019; Hochberg & Rauh, 2013) and is used by more than 200k industry professionals across 180 countries⁴.

Preqin's ESG disclosure data is novel for several reasons⁵. First, it is the most comprehensive set of management indicators sourced across multiple source frameworks and standards. 39 management indicators are sourced from rating providers, 13 from United Nations Principles for Responsible Investment (PRI), 11 from Institutional Limited Partners Association (ILPA), 6 from Task Force on Climate-Related Financial Disclosures (TCFD), 5 from Sustainable Finance Disclosure Regulation (SFDR), and 2 from Sustainability Accounting Standards Board (SASB). Second, the structured approach of tracking 76 management indicators rather than constructing an index based on a textual analysis (e.g., word count of ESG-related words on websites) or sentiment analysis provides a comprehensive assessment of disclosures, which allows for the comparison of ESG disclosures across GPs and different dimensions. The 76 management indicators can be categorized by ESG pillar (environmental, social, governance), governance type (firm-, portfolio-, asset-level), and specific private market themes (DEI, emissions, internal operations, investment strategy) which allows to drill down on ESG disclosures across different dimensions rather than only using aggregated disclosures which may be less informative (see Appendix A2 for a detailed overview of management indicators). Third, in contrast to other studies (Abraham et al., 2024; Boulland et al., 2024; Campbell et al., 2024), the management indicators are not only sourced from a single source (e.g., webpages, fund prospectuses) but use several public sources, which makes this the most comprehensive set of disclosures in the industry. Online Appendix OA2 highlights that only 42.7% of disclosures are sourced from webpage content, while including

⁴ Preqin ESG disclosure data as of February 2025.

⁵ Details on Preqin's methodology can be found in Preqin's Overview and Methodology Document on ESG Solutions (<https://docs.preqin.com/pro/Preqin-ESG-Solutions-Methodology.pdf>).

the Investment Adviser Public Disclosure (IAPD) website, PRI reports, sustainability reports, ESG reports, and other sources significantly increases the amount of tracked disclosures. Fourth, the global nature and coverage of the Preqin data provides a comprehensive global perspective on ESG disclosures across different fund strategies (e.g., buyout, venture capital, etc.) and sizes of GPs.

We collect fund performance data (*NetIRR*, *TVPI*, *DPI*) as of Q4 2024 and match detailed information on funds (e.g., *VintageYear*, *FundSize*, *FundSeries*, *FundStrategy*, *FundIndustry*, and *FundRegion*) and GPs (e.g., *GPAge*, *GPFundsRaised*, *GPCountry*, *GPRegion*, *GPMainStrategy*, *GPListed*) from Preqin. In addition, we retrieve portfolio company-level data on exposure to 26 ESG risk factors based on the SASB materiality framework and their estimated potential for positive environmental and social outcomes. We then aggregate these exposures to the fund level to construct fund-level *ESGRisk* and *Impact* measures.

3.2 ESG variable construction

To capture the extent of ESG transparency among GPs, we construct a continuous measure of ESG disclosure based on Preqin’s proprietary ESG dataset. This dataset monitors the disclosure behavior of GPs across 76 ESG-specific management indicators derived from a combination of globally recognized frameworks and regulatory initiatives (see Appendix A2). The 76 management indicators are organized along three primary dimensions: (i) ESG pillars: environmental (16 indicators), social (23), and governance (37); (ii) governance types: firm-level (43), portfolio-level (11), and asset-level (22); and (iii) specific private market themes: emissions (11), DEI (13), investment strategy (22), and internal operations (30). Preqin sources the relevant disclosure information from multiple public and private channels, including firm websites, Investment Adviser Public Disclosure (IAPD) records, PRI reports, and sustainability and ESG reports. Where GPs voluntarily submit additional documentation, private disclosures are also incorporated. The resulting dataset offers a standardized and comprehensive mapping of ESG practices in private equity, with global coverage across strategies and geographies.

For each GP, we define the ESG disclosure rate as:

$$ESGDisclosure_j = \frac{\text{Number of ESG management indicators disclosed by GP } j}{76} \times 100$$

This variable reflects the percentage of ESG indicators that GP j discloses and serves as our baseline measure of ESG transparency. For example, a GP that discloses 38 of the 76 indicators would have an *ESGDisclosure* rate of 50%. In fund-level regressions, each fund inherits the

ESGDisclosure rate of its managing GP. In additional analyses, we further decompose the disclosure rate into subcomponents corresponding to (i) each ESG pillar (Environmental, Social, Governance) and (ii) governance level (firm, portfolio, asset). This structure allows us to evaluate which dimensions of ESG disclosure are more predictive of fund performance or ESG risk outcomes. Unlike prior proxies based on textual frequency or sentiment (e.g., word counts), our indicator-based approach is grounded in standardized criteria from widely adopted frameworks (e.g., PRI, ILPA), offering a replicable and interpretable measure of ESG disclosure aligned with institutional investor expectations. It also supports dimensional analysis beyond the aggregate ESG level.

Our empirical framework distinguishes between ESG disclosure and materiality to better understand how sustainability considerations relate to private equity fund performance. ESG disclosures capture the extent to which GPs report on ESG-related policies, practices, and governance structures. As such, they reflect a fund manager's transparency and stated commitment to ESG integration, but not necessarily the financial or societal significance of the ESG issues involved. We distinguish between two forms of materiality to evaluate how GPs and their respective funds are exposed to ESG issues. First, we measure financial materiality, the extent to which ESG risks are likely to affect financial outcomes, using our *ESGRisk* variable, which draws on industry risk factors derived from the SASB framework. Second, we assess impact materiality, the potential for an investment to contribute to environmental or social objectives, using the *Impact* variables, which classify portfolio assets by their expected societal benefit. This distinction is essential because ESG disclosure alone does not indicate whether a fund is exposed to material ESG risks or actively contributes to sustainability outcomes.

We construct a fund-level *ESGRisk* measure to capture the extent to which a fund is exposed to financially material ESG risks. The variable is based on the SASB materiality framework, which identifies industry-specific ESG issues likely to affect financial outcomes. Prequin assesses exposure to 26 ESG risk factors across five SASB dimensions for each underlying portfolio company based on the company's primary industry classification (across 77 distinct industries). These dimensions are mapped into the three ESG pillars: environmental (e.g., GHG emissions, energy management), social (e.g., labor practices, product quality and safety), and governance (e.g., business ethics, systemic risk management). Following Böni et al. (2024), we calculate a percentage-based ESG risk score, reflecting the share of applicable

risk factors flagged as material⁶. However, while Böni et al. (2024) compute this score at the portfolio-level across all funds managed by a GP, we adapt the methodology to the fund level, as our objective is to examine how ESG risk exposure relates to fund performance. In addition to the overall *ESGRisk* score, we compute pillar-specific risk scores for the environmental, social, and governance dimensions. In addition, Preqin provides an *AvgRiskExposure* score on a scale from 0 to 10 that reflects each portfolio company's overall ESG risk profile based on its SASB industry exposure, adjusted for the geographic location of its operations. At the fund level, we calculate the share of portfolio companies falling into each risk band (*LowRisk*, *ModerateRisk*, *HighRisk*, *VeryHighRisk*) based on Preqin's risk exposure score.

We construct a fund-level *Impact* measure based on the assessed potential of each underlying asset to generate positive environmental or social outcomes alongside financial returns. Preqin classifies each asset into four discrete categories (*UnlikelyImpact*, *PossibleImpact*, *LikelyImpact*, or *VeryLikelyImpact*) reflecting its ex-ante impact potential. This classification draws on three information sources: (i) whether an impact fund holds the asset, (ii) whether it operates in an industry identified as impact-relevant (e.g., renewable energy, education services, recycling), and (iii) a textual analysis of the asset's business description and its alignment with the United Nations Sustainable Development Goals (SDGs). At the fund level, we calculate the share of assets falling into each impact category, allowing us to capture both the extent and distribution of expected impact across fund holdings. A detailed overview of all variables can be found in Appendix A1.

Lastly, we construct an indicator variable for whether a fund is associated with an ESG-related label, based on Preqin's fund-level tagging. ESG labels are sourced from regulatory frameworks and marketing practices and include eight common types: Impact, ESG Integration, Climate, Energy Transition, SDG-aligned, SFDR Article 8, SFDR Article 9, and Sharia-compliant. While some labels are based on regulatory definitions (e.g., SFDR Article 8 and 9 under the EU Sustainable Finance Disclosure Regulation), others reflect GP self-identification or branding in marketing materials (e.g., ESG Integration, Climate, Impact). Preqin assigns these labels based on fund names, prospectuses, marketing documents, and self-declarations by GPs. This classification allows us to distinguish between funds promoting ESG characteristics or impact objectives and those without such claims. At the fund level, we

⁶ For example, EQT VIII has 13 disclosed portfolio companies. Based on the SASB framework, these account for 91 material ESG issues. With a maximum of 26 issues per company, the theoretical total is 338 (13 * 26). The resulting *ESGRisk* score is $(123 / 416) * 100 = 26.92$.

construct indicator variables for each label type and a composite *ESGLabel* indicator equal to one if a fund carries any of the tracked ESG labels.

3.3 Sample selection

Table 1 shows the sample selection and data cleaning process. Panel A, which is primarily used for our descriptive statistics on GP's ESG disclosures, starts with all 32,749 PE GPs in Preqin's database. We drop all observations for which *ESGDisclosure* or GP-level control variables (*GPFundsRaised*, *GPListed*, *GPAge*, *GPCountry*, *GPMainStrategy*) are unavailable. This results in a sample of 11,008 GPs, which account for 95.4% of the \$10.7 trillion of private equity funds raised in the last 10 years. Compared to Böni et al. (2024), our sample is nearly three times larger, as we do not require the availability of portfolio-level ESG risk and impact data or LP-level control variables for the descriptive analysis. This allows us to provide a broader cross-sectional overview of GP ESG disclosures. Our sample also exhibits a slightly higher share of venture capital GPs (68% vs. 55%) and a lower share of buyout GPs (15% vs. 23%), while the share of growth GPs is broadly similar (14% vs. 13%).

Panel B, which is used for our performance-related analyses (including ESG disclosure, ESG risk, impact, and ESG label regressions), starts with the whole Preqin universe of fund performance data comprising 7,816 funds managed by 2,081 GPs and accounting for \$6.5 trillion in Assets under Management (AUM). We exclude all observations where GP-level information from Panel A is unavailable, any of the three fund performance metrics (*NetIRR*, *TVPI*, *DPI*) is missing or marked as non-meaningful, the fund is not a Private Equity or Venture Capital fund (e.g., Infrastructure, Private Debt, Natural Resources), the *VintageYear* is before 2010 or after 2020, or any fund-level control variable (*FundSize*, *FundSeries*, *FundStrategy*, *FundIndustry*, and *FundRegion*) is missing. In addition, we require the availability of asset-level ESG risk and impact data for the portfolio companies, which is aggregated to the fund-level. This results in a final sample of 1,437 funds managed by 673 GPs and accounting for 32.1%⁷ of the \$6.5 trillion AUM in the entire Preqin universe for which performance data is available.

⁷ Comparing the \$2.1 trillion AUM in the final sample to the AUM of funds in the full Preqin fund performance sample with vintage years between 2010 and 2020 leads to a coverage ratio of 52.0% (\$2,101B / (\$6,541B - \$1,459B - \$1,042B)).

3.4 Descriptive statistics

Table 2 presents descriptive statistics for the full sample of private equity GPs used in our disclosure analysis (Panel A), while Table 3 reports fund-level statistics for the performance sample (Panel B).

In Panel A, which includes 11,008 GPs, the average (median) *GPAge* is 13.5 (10.0) years. The average (median) *GP Funds Raised* over the past decade is \$872 million (\$106 million). The dataset reflects broad coverage of the GP universe, including many smaller managers. However, the distribution is right-skewed, with a small number of very large GPs accounting for a disproportionate share of capital raised. Only about 1% of GPs are publicly listed. Regarding primary investment strategy, 15% of GPs are classified as buyout-focused, 14% as growth equity, 68% as venture capital, and 3% as other strategies. 11% of GPs are signatories to the UN Principles for Responsible Investment (*PRIMembership*), and 6% report affiliations with other ESG-related industry initiatives (*OtherMemberships*). The average (median) *ESG Disclosure* rate is 8.4% (2.6%), with similarly low disclosure rates across the environmental (3.8% (0.0%)), social (7.0% (0.0%)), and governance (11.3% (2.7%)) pillars. When disaggregated by governance level, average (median) disclosure rates are 9.6% (4.7%) at the firm level, 9.1% (0.0%) at the portfolio level, and 5.6% (0.0%) at the asset level. These figures highlight the overall low levels of ESG disclosure across the broader GP universe and the skewed distribution of ESG disclosures, with a large share of GPs reporting no ESG-related information.

[Insert Table 2 about here]

Table 4 provides a cross-sectional overview of GP-level ESG disclosures across various dimensions. Consistent with the broader patterns observed in Panel A, disclosure rates vary substantially by geography, strategy, and firm characteristics. GPs headquartered in Europe report the highest levels of ESG transparency, with an average *ESG Disclosure* rate of 22.3%, well above the global mean of 8.4%. Among European countries with substantial GP representation, France (29.0%), the UK (23.1%), Germany (19.6%), and Switzerland (22.6%) stand out for their comparatively high disclosure rates. In contrast, GPs in the United States, which account for the largest number of GPs in the dataset, report a much lower average disclosure rate of 8.6%. The contrast is even starker for China, where the average disclosure rate is just 1.0%, and even the 75th percentile remains at 0%, indicating that three-quarters of Chinese GPs disclose no ESG-related information. These patterns underscore the deep regional heterogeneity in ESG transparency, likely shaped by differences in regulatory expectations,

investor pressure, and disclosure norms. Disclosure rates also differ by GP characteristics. Listed GPs report markedly higher transparency levels, averaging 37.7% compared to 8.0% among their non-listed counterparts. GPs in the top quintile of capital raised disclose, on average, 18.5% of ESG indicators versus just 2.7% in the bottom quintile. Finally, disclosure rates are substantially higher among buyout and growth equity GPs relative to venture capital firms, consistent with the more institutionalized ESG practices typically found in later-stage strategies. Across all these GP groupings, we observe a consistent decline in disclosure intensity from the governance pillar to social and environmental indicators. A similar, though less uniform, pattern emerges across governance levels. While disclosure is generally most comprehensive at the firm-level, followed by the portfolio- and asset-level, this ranking does not hold across all dimensions. For example, portfolio-level disclosures exceed firm-level disclosures on average among the largest GPs (quintile 5), buyout-focused GPs, and those headquartered in Europe, suggesting greater emphasis on ESG practices within the investment process rather than internal operations. These patterns reinforce the conclusion that ESG disclosure in private equity is shaped by structural factors such as geography, firm size, strategy, and public market exposure.

Appendix A3 provides further detail on the prevalence of specific ESG management indicators across firm-, portfolio-, and asset-level disclosures. Disclosure rates vary widely across indicators, with a small subset of governance-related firm-level indicators driving much of the overall disclosure activity. For example, over 60% of GPs disclose the composition of their governing bodies, while indicators such as ownership structure, privacy policy, and ESG considerations in operations are reported by 20–30% of GPs. In contrast, fewer than 10% of GPs disclose most environmental and asset-level indicators. Disclosure of emissions-related metrics such as Scope 1–3 GHG emissions and emission targets remains particularly limited, especially at the asset-level. DEI-related indicators such as gender breakdowns, family leave policies, and diversity training are also among the least commonly reported.

[Insert Table 4, Appendix A3, and Online Appendix OA1 about here]

By contrast, Table 3 shows that GPs in Panel B are substantially larger and more established. The average (median) *GPAge* is 27.1 (25.0) years, and the average (median) *GP Funds Raised* amounts to \$13.1 billion (\$3.4 billion), reflecting that fund performance, ESG risk, and impact data are predominantly available for larger and established managers (Begenau & Siriwardane, 2024; Brown et al., 2019; Harris et al., 2014; Sensoy et al., 2014). The sample composition also shifts toward buyout strategies: while 68% of GPs in Panel A are venture

capital-focused, this share falls to 28% in Panel B, whereas buyout GPs increase from 15% to 49%. The greater formalization of ESG commitments among larger managers is also reflected in the fact that 45% of GPs in Panel B are signatories to the UN Principles for Responsible Investment (*PRIMembership*), and 28% maintain affiliations with other ESG-related initiatives (*OtherMemberships*). The average (median) *ESGDisclosure* rate increases to 28.4% (21.1%) in Panel B, compared to 8.4% (2.6%) in Panel A. This pattern holds across subcomponents: governance-related disclosures average (median) 35.2% (35.1%) in Panel B, compared to 11.3% (2.7%) in Panel A; social disclosures average (median) 25.6% (13.0%) versus 6.9% (0.0%); and environmental disclosures average (median) 16.8% (0.0%) versus 3.8% (0.0%). Across governance types, firm-level, portfolio-level, and asset-level disclosures average (median) 28.9% (23.3%), 34.9% (36.4%), and 24.2% (18.2%), respectively. While Böni et al. (2024) document that firm-level disclosure dominates across all dimensions, our data show higher transparency at the portfolio level, likely reflecting methodological updates in Preqin's 2024 ESG framework that expanded the coverage of management indicators. The average (median) fund size is \$1.46 billion (\$524 million), and average (median) performance equals 16.5% (15.6%) for *NetIRR*, 1.93x (1.74x) for *TVPI*, and 1.02x (0.86x) for *DPI*. The average fund in our sample holds 9.4 portfolio companies. The average (median) overall *ESGRisk* score is 30.6 (30.2), with environmental, social, and governance risk subcomponents averaging 28.8, 37.7, and 22.8, respectively. The average (median) *AvgRiskExposure* score is 3.4 (3.3) on a 0–10 scale, indicating moderate exposure to financially material ESG risks. On average, 28.9% of portfolio companies are classified as *LowRisk*, 55.9% as *ModerateRisk*, 11.7% as *HighRisk*, and 3.5% as *VeryHighRisk*. Regarding ESG impact potential, portfolio companies are most frequently classified as *UnlikelyImpact* (44.5%) or *VeryLikelyImpact* (36.9%) to generate positive environmental or social outcomes, while 10.7% fall into the *PossibleImpact* and 7.9% into the *LikelyImpact* categories. These distributions suggest that most funds are exposed to moderate ESG risks and hold a meaningful share of investments with high expected impact potential. ESG labels remain at an early adoption stage in private equity. Only 3.3% of the sample funds (47 out of 1,437) carry any *ESGLabel*. Among these, the most common classifications are *ESGIntegrationLabel* (23), *SFDR8Label* (19), *ImpactLabel* (10), and *SDGLLabel* (8), followed by *ClimateLabel* (5), *ShariaCompliantLabel* (1), and *EnergyTransitionLabel* (1).

[Insert Table 3 about here]

4 EMPIRICAL STRATEGY AND ECONOMETRIC RESULTS

We begin with a GP-level pretest that relates a GP’s ESG disclosure to its aggregated performance track record. We regress the GP’s *ESGDisclosure* rate on the GP’s average fund performance percentile rank, which is constructed within *VintageYear*, *FundAssetClass*, and *FundRegion*. We average *NetIRR* and *TVPI* percentile ranks equal-weighted or value-weighted by called capital. We control for *AvgFundAge*, *AvgFundSize*, *AvgFundSeries*, *GPAge*, *GP FundsRaised*, *GPListed*, and *GPMainStrategy*, and include *GPCountry* fixed effects. Table 5 shows a negative and statistically significant association across all four specifications (*NetIRRPercentileRankEW* -0.063 ; *NetIRRPercentileRankVW* -0.061 ; *TVPIPercentileRankEW* -0.058 ; *TVPIPercentileRankVW* -0.057), indicating that higher historical performance is associated with lower disclosure. This pretest motivates the fund-level analysis that follows.

To examine how ESG disclosure relates to fund performance, ESG risk exposure, and ESG labeling, we estimate a set of ordinary least squares (OLS) regression models using fund-level data. Our empirical strategy is structured around three core specifications, each capturing a distinct relationship central to our research questions. All models are estimated at the fund level (*i*), with ESG disclosure measured at the level of the managing general partner (*j*). Standard errors are clustered at the GP level. For each outcome variable, we estimate a sequence of models with increasing levels of control: starting with a specification that includes only the primary independent variable, then adding GP- and fund-level covariates, followed by fixed effects for *VintageYear* and *GPCountry*, and finally a fully specified model that also includes *FundRegion* and *FundIndustry* fixed effects.

First, we assess the relationship between ESG disclosure and fund performance by estimating the following model:

$$FundPerformance_{ij} = \alpha + \beta^T ESGDisclosureQuartiles_j + \delta^T C + \lambda^T F + \varepsilon_{ij} \quad (1)$$

where *FundPerformance_{ij}* is measured using *NetIRR*, *TVPI*, or *DPI* for fund *i* managed by GP *j*. Our primary independent variable is a categorical variable indicating the ESG disclosure quartile of the GP, based on the *ESGDisclosure* rate constructed from 76 disclosed ESG management indicators. The vector *C* includes GP and fund controls. GP controls include the natural logarithm of *GPAge*, the natural logarithm of *GP FundsRaised*, an indicator for whether the GP is publicly listed (*GPListed*), and categorical variables for the GP’s main investment strategy (*GPMainStrategy*). Fund controls include the natural logarithm of *FundSize*, the

natural logarithm of *FundSeries*, and categorical variables for *FundStrategy*. The vector F includes fixed effects for fund *VintageYear*, *FundRegion*, *FundIndustry*, and *GPCountry*. In Section 4.2, we augment specification (1) by adding fund-level ESG risk controls (the composite *ESGRisk* score, *AvgRiskExposure*, and the shares of portfolio companies in the *LowRisk*, *ModerateRisk*, *HighRisk*, and *VeryHighRisk* bands) together with portfolio impact potential (*UnlikelyImpact*, *PossibleImpact*, *LikelyImpact*, *VeryLikelyImpact*), and re-estimate the models accordingly.

Second, we test whether ESG disclosure is associated with differences in fund-level ESG risk, which we interpret as a proxy for financial materiality. Specifically, we estimate:

$$ESGRisk_{ij} = \alpha + \beta^T ESGDisclosureQuartiles_j + \delta^T C + \lambda^T F + \varepsilon_{ij} \quad (2)$$

where $ESGRisk_{ij}$ is the percentage-based ESG risk score for fund i , aggregated from portfolio company data using the SASB materiality framework. Control variables and fixed effects are identical to those in equation (1). In Section 4.2, we also re-estimate using alternative dependent variables with *AvgRiskExposure* and the fund-level shares in the *LowRisk*, *ModerateRisk*, *HighRisk*, and *VeryHighRisk* bands. We estimate an analogous specification with fund-level impact potential as the dependent variable, replacing $ESGRisk_{ij}$ in (2) with the portfolio shares classified as *UnlikelyImpact*, *PossibleImpact*, *LikelyImpact*, and *VeryLikelyImpact* to test whether ESG disclosure is associated with impact potential.

Third, we assess whether ESG-labeled funds exhibit different performance outcomes compared to non-labeled funds. We estimate:

$$FundPerformance_{ij} = \alpha + \beta^T ESGLabel_i + \delta^T C + \lambda^T F + \varepsilon_{ij} \quad (3)$$

where $ESGLabel_i$ is a binary indicator equal to one if fund i carries any ESG-related label. In additional specifications, we disaggregate this variable into individual indicators for Impact, Climate, ESG Integration, SDG-aligned, Energy Transition, SFDR Article 8, and Sharia-compliant labels. The complete set of GP- and fund-level controls and fixed effects is applied consistently.

4.1 ESG disclosures

We begin by examining whether the level of ESG disclosure is associated with differences in fund performance. Table 6 presents the results of regressing fund-level *NetIRR*, *TVPI*, and *DPI* on *ESGDisclosureQuartiles*, where the lowest quartile (Quartile 1) is the omitted reference category. *ESGDisclosure* is measured as the share of 76 ESG management indicators disclosed

by the GP, with quartiles defined based on each GP's position in the overall disclosure distribution.

Across all three performance metrics, we observe a negative relationship between ESG disclosure and fund performance. Funds managed by GPs in the top ESG disclosure quartile (Quartile 4) underperform those in the lowest quartile by 4.1 percentage points in *NetIRR*, 0.43x in *TVPI*, and 0.18x in *DPI* in the fully specified model. The differences in *NetIRR* and *TVPI* are statistically significant at the 1% level, while the *DPI* effect is significant at the 5% level. Performance declines already appear in intermediate quartiles, though effect sizes are much smaller and only statistically significant at the 10% significance level for *TVPI*. To test for non-linearity, we re-estimate the model using the logarithm of *ESGDisclosure* and its squared term. Results reported in Online Appendix OA3 confirm a concave relationship for *NetIRR*, the linear term is positive while the squared term is negative and significant, indicating that returns deteriorate beyond moderate disclosure intensity.

[Insert Table 6 and Online Appendix OA3 about here]

We first disaggregate ESG disclosure into its three pillars (Environmental, Social, and Governance) to examine whether the relationship with fund performance differs across ESG dimensions. Table 7a shows that top-quartile disclosure is negatively associated with fund performance across all three pillars, with all effects statistically significant at least at the 10% level. The negative association is strongest in terms of *NetIRR* for social disclosure, where top-quartile disclosers underperform by 4.2 percentage points, while governance disclosure shows the most pronounced effects for *TVPI* and *DPI*, with top-quartile funds reporting 0.35x lower *TVPI* and 0.16x lower *DPI* relative to the lowest quartile. Environmental disclosure is likewise associated with weaker performance, with top-quartile funds underperforming by 3.8 percentage points in *NetIRR*, 0.22x in *TVPI*, and 0.13x in *DPI*. Overall, these findings indicate that higher ESG transparency across all three pillars is associated with lower fund performance, with the strength of the effect varying across performance measures.

We next examine ESG disclosure by governance level, distinguishing between firm-level (43), portfolio-level (11), and asset-level (22) indicators. If ESG integration is substantive, as argued by Abraham et al. (2024), one would expect asset-level disclosure, which focuses on portfolio companies, to be more closely linked to financial performance due to its direct connection to value creation. By contrast, firm-level disclosure, which primarily captures organizational policies and governance structures, should have a weaker relationship with

investment outcomes. In practice, however, the results in Table 7b show the opposite pattern: performance penalties are most pronounced for portfolio- and asset-level disclosures, while firm-level transparency exhibits smaller effects. Funds managed by GPs in the top quartile of portfolio-level disclosure underperform by 3.5 percentage points in *NetIRR* and 0.32x in *TVPI*, whereas top-quartile asset-level disclosers show 4.1 percentage points lower *NetIRR* and 0.33x lower *TVPI*, all statistically significant at the 1% level. Firm-level disclosure remains negatively associated with performance (−3.3 pp *NetIRR*, −0.31x *TVPI*), though to a lesser extent. If ESG integration at the asset level were value enhancing, one might expect at least a neutral or positive relationship with fund performance. The stronger underperformance observed among high asset-level disclosers suggests that greater transparency at this level does not necessarily translate into financial performance. One possible explanation is that GPs engaging more extensively in ESG implementation and reporting incur higher costs or pursue longer-term objectives not yet reflected in financial performance. While Abraham et al. (2024) find that asset-level ESG disclosure is positively associated with ESG outcomes, our findings suggest that these improvements may not coincide with higher financial performance.

Lastly, we disaggregate *ESGDisclosure* by theme (Investment Strategy, Internal Operations, Emissions, and DEI) to assess which types of transparency are most relevant to performance outcomes. Table 7c shows that disclosure related to Internal Operations and DEI exhibits the strongest negative associations with fund performance across all three metrics. Funds in the top quartile of Internal Operations disclosure underperform by 4.4 percentage points in *NetIRR*, 0.37x in *TVPI*, and 0.23x in *DPI*, while those with extensive DEI disclosure underperform by 4.1 percentage points in *NetIRR*, 0.35x in *TVPI*, and 0.19x in *DPI*, all significant at the 1% level. In contrast, Investment Strategy and Emissions disclosures show weaker and less consistent effects. For Investment Strategy, top-quartile funds exhibit 2.2 percentage points lower *NetIRR* and 0.27x lower *TVPI*, but no statistically significant difference in *DPI*. These results suggest that investors may discount transparency focused on internal policies, while disclosures directly tied to investment strategy or environmental reporting appear less informative for explaining cross-sectional differences in fund performance. One potential interpretation for the stronger negative relationship observed for DEI and Internal Operations disclosure is that GPs emphasizing these dimensions may engage in costly reporting activities that divert managerial attention and resources away from value creation initiatives, leading to weaker realized performance outcomes.

[Insert Table 7a, Table 7b and Table 7c about here]

Online Appendix OA4 examines the relationship between *ESGDisclosure* and fund performance across different *FundStrategy* types. The negative association between ESG disclosure and performance is primarily driven by buyout funds, where both statistical and economic significance are strongest. Top-quartile buyout disclosers underperform bottom-quartile peers by 5.5 percentage points in *NetIRR*, 0.40x in *TVPI*, and 0.21x in *DPI*, all significant at conventional levels. For growth and venture capital funds, we find limited evidence of such a relationship. Only for venture capital funds do we observe a statistically significant difference in *TVPI*, with top-quartile disclosers underperforming by 0.41x at the 5% level, while differences in *NetIRR* and *DPI* are economically small and statistically insignificant. These results indicate that the negative ESG disclosure–performance relationship is concentrated in later-stage strategies, consistent with stronger institutionalization in the buyout segment.

[Insert Online Appendix OA4 about here]

These findings indicate that ESG disclosure is associated with differences in fund performance across the disclosure distribution. While moderate levels of disclosure may reflect evolving transparency norms, funds managed by GPs in the top disclosure quartile consistently underperform those in the bottom quartile. One interpretation is that GPs with weaker financial track records may use ESG disclosure as a substitute signal to appeal to investor preferences, particularly in settings characterized by high information asymmetry. This aligns with signaling theory and prior findings by Böni et al. (2024), who show that higher ESG transparency may reflect strategic signaling toward ESG-sensitive investors and not lower portfolio ESG risk or more substantial ESG impact.

4.2 ESG risk and impact

We next examine whether the negative relationship between ESG disclosure and fund performance can be explained by differences in ESG risk exposure or impact potential. Appendix A4 presents the cross-tabulation of *ESGDisclosure* and *ESGRisk*, which shows that funds managed by GPs in the lowest disclosure quartile (Quartile 1) tend to hold lower-risk assets, whereas those in the highest disclosure quartile (Quartile 4) exhibit a higher share of portfolio companies above the median ESG risk level. For ESG impact, Appendix A5 shows that Quartile 4 funds have a smaller share of portfolio companies with *UnlikelyImpact* potential (42.0%) and a larger share with *VeryLikelyImpact* potential (38.9%) relative to Quartile 1 funds (47.0% and 37.7%, respectively).

[Insert Appendix A4 and Appendix A5 about here]

We formally test these relationships in Table 8 and find no statistically significant association between ESG disclosure and any of the ESG risk measures. While high-disclosure (Quartile 4) funds appear to have marginally lower *ESGRisk* but a slightly higher *AvgRiskExposure*, reflecting a smaller share of *LowRisk* and a higher share of *VeryHighRisk* assets, none of these effects are statistically significant. This result suggests that ESG transparency is not associated with the underlying ESG risk profile of portfolio companies. Consistent with Böni et al. (2024) and Hsiung et al. (2024), we interpret this as evidence that ESG disclosure and ESG risk-taking are largely decoupled in private equity.

To test whether ESG risk explains the observed return differences, we re-estimate our fund performance regressions controlling for both the overall level and the distribution of ESG risk across portfolio companies (see Table 9). We find no significant relationship between the aggregate ESG risk of a fund and its financial performance, suggesting that *ESGRisk* at the portfolio level does not explain return variation. However, we observe some relationship in the distribution of ESG risk: funds with a higher share of portfolio companies classified as *ModerateRisk* exhibit slightly better performance in terms of *NetIRR* and *DPI*, significant at the 5% level but overall small in economic magnitude. This pattern indicates that while overall ESG risk exposure is not related to performance, funds diversified across moderate-risk assets may achieve marginally higher returns. The negative association between top-quartile ESG disclosure and fund performance remains economically and statistically significant across all specifications, implying that ESG-related risks are already priced and do not drive the underperformance of highly transparent GPs.

[Insert Table 8 and Table 9 about here]

We next assess whether ESG disclosure is related to a fund's impact potential, the share of portfolio companies expected to generate positive environmental or social outcomes. In Table 10, we find that funds in Quartiles 3 and 4 disclosers have roughly 6.2 percentage points lower shares of *UnlikelyImpact* assets, and Quartile 4 funds have an 8.5 percentage point higher share of *VeryLikelyImpact* assets compared to Quartile 1 disclosers. These results suggest that more transparent GPs tend to hold portfolios with somewhat higher potential for positive impact. However, when controlling for impact potential in fund performance regressions (see Table 11), the negative relationship between ESG disclosure and performance persists. Only the *LikelyImpact* variable is statistically significant at the 10% level and negatively associated with TVPI ($-0.002x$), an economically small effect consistent with the idea that some LPs may accept lower returns for impact-oriented investments.

Overall, we find no evidence that high ESG disclosure is associated with lower ESG risk exposure, and only weak evidence of higher impact potential among top disclosers. Yet, these differences do not explain the observed return gap between high and low disclosers. Taken together, the results suggest that while ESG risk appears to be fully priced, higher ESG disclosure does not coincide with materially different risk-taking or impact potential. This pattern is consistent with the interpretation that GPs may use ESG disclosure as a signaling device toward ESG-sensitive investors, rather than as evidence of deeper ESG integration or financially material ESG performance.

[Insert Table 10 and Table 11 about here]

4.3 ESG fund labels

Table 12 presents the regression results on fund performance differentials between ESG-labeled and non-labeled funds. Across specifications, the coefficient estimates on *ESGLabel* are economically small and statistically insignificant for Net IRR and DPI, indicating no systematic performance differences between labeled and non-labeled funds. For TVPI, ESG-labeled funds display a lower multiple in intermediate models (Column (5) and (6)), but the effect loses significance once fixed effects for *VintageYear*, *FundRegion*, *FundIndustry*, and *GPCountry* are included. In the fully specified model, the coefficients suggest negligible economic magnitudes and are statistically insignificant, indicating a 1 percentage point higher Net IRR and a 0.03x lower TVPI, suggesting that ESG labeling does not materially explain variation in fund returns after controlling for fund and GP characteristics.

Table 13 provides additional detail by disaggregating results across individual ESG label types. While most label categories show no systematic relationship with fund performance, a few niche labels display weaker outcomes. Specifically, *EnergyTransitionLabel* and *ShariaCompliantLabel* funds exhibit lower Net IRRs, and *SDG*-labeled funds show lower DPI. These results should be interpreted with caution given the limited number of observations in each category. As a large share of ESG-labeled funds has been raised only in recent years and many remain in the early stages of their fund cycles, assessing the long-term performance implications of different label types represents a promising avenue for future research.

Overall, the results indicate that ESG labels are not systematically associated with fund performance in private equity. Except for the limited evidence of underperformance among *EnergyTransitionLabel* and *ShariaCompliantLabel* funds, labeled and non-labeled funds perform comparably once accounting for fund- and GP-level characteristics and fixed effects. These findings are consistent with early private market studies showing that impact-oriented or Article 8/9 funds tend to match rather than outperform conventional benchmarks (Gloria et al., 2025; Jeffers et al., 2024), although some research finds signs of underperformance for impact-focused strategies (Barber et al., 2021). Our findings suggest that ESG labels currently carry limited informational value regarding financial outcomes in private markets. However, as labeling becomes more widespread and the alternatives industry increasingly opens to retail investors, the role of ESG labels in shaping investment behavior and regulatory oversight will remain an important area of focus for policymakers.

[Insert Table 12 and Table 13 about here]

5 CONCLUSIONS

This paper provides new evidence on the relationship between ESG disclosure, fund performance, and risk-taking in private equity. Using a global dataset covering 76 ESG management indicators across 1,437 funds, we document substantial heterogeneity in ESG disclosure among general partners. We find that funds managed by GPs in the highest ESG disclosure quartile underperform those in the lowest by approximately 4.1 percentage points in *NetIRR*, 0.43x in *TVPI*, and 0.18x in *DPI*. The negative relationship between ESG disclosure and performance persists across specifications and remains economically and statistically significant after controlling for ESG risk and impact potential. This pattern is strongest for buyout funds and, to a lesser extent, for venture capital funds in terms of *TVPI*, while no comparable relationship is observed for growth funds. Disaggregating ESG disclosure across pillars, governance levels, and themes shows that underperformance is consistent but heterogeneous, with the strongest effects for social disclosure, asset-level disclosure, and DEI- and internal operations-related disclosures. This suggests that greater ESG reporting intensity may entail costly disclosure efforts that do not translate into improved financial outcomes.

We find no evidence that ESG disclosure is systematically related to fund-level ESG risk-taking. The overall level of ESG risk does not explain performance variation, and ESG risk thus appears to be fully priced by investors. We observe weak evidence that highly transparent GPs hold portfolios with slightly greater impact potential; however, this does not account for the return differentials between high and low disclosers. Taken together, these results suggest that higher ESG transparency is not associated with differences in financial materiality or impact orientation, consistent with the interpretation that disclosure may serve a signaling function toward ESG-sensitive investors rather than reflect deeper ESG integration.

Finally, we find no performance differences between ESG-labeled and non-labeled funds. The absence of consistent performance effects across label types indicates that ESG fund labels currently carry limited informational value regarding financial outcomes in private equity.

Overall, our findings show that ESG disclosure and labeling are not uniformly predictive of financial performance in private equity. While both are likely to remain central features of the industry's evolution, their financial implications will depend on whether ongoing standardization efforts by regulators and industry bodies succeed in linking disclosure more closely to measurable ESG outcomes and long-term value creation.

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Table 1: Sample Selection and Data Cleaning

Table 1 summarizes the sample selection and data cleaning process. Panel A presents the Fund Manager (GP) sample used for descriptive statistics on GP-level ESG disclosure variables. Panel B contains the fund performance sample. In Panel A, the rightmost column reports the total funds raised by each GP over the past 10 years (*GP Funds Raised*), whereas in Panel B it reflects the aggregate size of the funds included in the sample (*Fund Size*).

Panel A: Fund Managers	# of GPs	Funds raised (USD bn)
Full Preqin Pro Fund Manager Data⁸	33,470	10,067
Missing ESGDisclosure	-6,199	-359
Missing GPFundsRaised	-15,673	0
Missing GPListed	-1	-1
Missing GPAGE	-296	-18
Missing GPCountry or ≤ 10 countries ⁹	-235	-47
Missing GPMainStrategy	-58	-41
Total	11,008	9,601

Panel B: Fund Performance	# of funds	# of GPs	Aggregate fund size (USD bn)
Full Preqin Pro Fund Performance Data¹	7,816	2,081	6,541
Non-overlapping GPs Panel A	-1,357	-690	-395
Missing fund performance data or n/m IRR	-1,149	-186	-978
Fund is not a PE or VC fund	-43	-4	-59
Fund vintage year <2010	-2,158	-259	-1,459
Fund vintage year >2020	-707	-101	-1,042
Missing fund controls ¹⁰	-113	-13	0
Missing ESGRisk and Impact potential	-852	-155	-507
Total	1,437	673	2,101

⁸ Includes only Private Equity Fund Managers.

⁹ Following Lang et al. (2012).

¹⁰ Includes *FundSize*, *FundSeries*, *FundStrategy*, *FundIndustry*, and *FundRegion*.

Table 2: Descriptive Statistics – Panel A Fund Managers

Table 2 shows the descriptive statistics for all variables used in the descriptive analysis in Panel A. The GP ESG Disclosure variables (i.e., *ESGDisclosure*, *EnvDisclosure*, etc.) are left unaltered. *GPFundsRaised* is in USD million. Detailed variable descriptions can be found in Appendix A1, while the sample construction is outlined in Table 1.

Panel A	N	Mean	Min	P25	Median	P75	Max	Std. Dev
GP Variables								
GPAge	11,008	13.47	0.00	8.00	10.00	16.00	227.00	11.28
GPFundsRaised	11,008	872.25	0.00	29.52	105.77	407.46	139,294.80	4,663.07
GPListed	11,008	0.01	0.00	0.00	0.00	0.00	1.00	0.11
GPMainStrategyBuyout	11,008	0.15	0.00	0.00	0.00	0.00	1.00	0.36
GPMainStrategyGrowth	11,008	0.14	0.00	0.00	0.00	0.00	1.00	0.34
GPMainStrategyVC	11,008	0.68	0.00	0.00	1.00	1.00	1.00	0.47
GPMainStrategyOther ¹¹	11,008	0.03	0.00	0.00	0.00	0.00	1.00	0.18
GPPRIMembership	11,008	0.11	0.00	0.00	0.00	0.00	1.00	0.32
GPOtherMemberships	11,008	0.06	0.00	0.00	0.00	0.00	1.00	0.24
GP ESG Disclosure								
ESGDisclosure	11,008	8.38	0.00	0.00	2.63	9.21	88.16	14.13
EnvDisclosure	11,008	3.79	0.00	0.00	0.00	0.00	100.00	12.60
SocDisclosure	11,008	6.95	0.00	0.00	0.00	8.70	91.30	13.68
GovDisclosure	11,008	11.25	0.00	0.00	2.70	16.22	91.89	16.74
FirmDisclosure	11,008	9.62	0.00	0.00	4.65	13.95	95.35	14.43
PortfolioDisclosure	11,008	9.12	0.00	0.00	0.00	0.00	90.91	20.12
AssetDisclosure	11,008	5.59	0.00	0.00	0.00	0.00	95.45	15.00

¹¹ Other strategies include Balanced, Co-Investment, Direct Secondaries, Distressed PE, Hybrid, Mezzanine, Natural Resources, Timber and Venture Debt.

Table 3: Descriptive Statistics – Panel B Fund Performance

Table 3 shows the descriptive statistics for all variables used in the fund performance regressions in Panel B. The GP ESG Disclosure variables (i.e., *ESGDisclosure*, *EnvDisclosure*, etc.) are left unaltered, while fund performance metrics (*NetIRR*, *TVPI*, *DPI*) are winsorized at the 1st and 99th percentile. *GPFundsRaised* and *FundSize* are in USD million. Detailed variable descriptions can be found in Appendix A1, while the sample construction is outlined in Table 1.

Panel B	N	Mean	Min	P25	Median	P75	Max	Std. Dev
GP Variables								
GPAge	1,437	25.95	4.00	16.00	25.00	33.00	153.00	13.60
GPFundsRaised	1,437	12,208.14	7.80	849.90	2,987.40	9,728.65	139,294.80	23,686.67
GPListed	1,437	0.07	0.00	0.00	0.00	0.00	1.00	0.26
GPMainStrategyBuyout	1,437	0.53	0.00	0.00	1.00	1.00	1.00	0.50
GPMainStrategyGrowth	1,437	0.15	0.00	0.00	0.00	0.00	1.00	0.36
GPMainStrategyVC	1,437	0.29	0.00	0.00	0.00	1.00	1.00	0.45
GPMainStrategyOther ¹²	1,437	0.03	0.00	0.00	0.00	0.00	1.00	0.17
GPPRIMembership	1,437	0.45	0.00	0.00	0.00	1.00	1.00	0.50
GPOtherMemberships	1,437	0.28	0.00	0.00	0.00	1.00	1.00	0.45
GP ESG Disclosure								
ESGDisclosure	1,437	28.40	0.00	9.21	21.05	46.05	88.16	22.16
EnvDisclosure	1,437	16.78	0.00	0.00	0.00	25.00	93.75	24.85
SocDisclosure	1,437	25.55	0.00	8.70	13.04	43.48	91.30	23.23
GovDisclosure	1,437	35.20	0.00	13.51	35.14	54.05	89.19	23.07
FirmDisclosure	1,437	28.88	0.00	13.95	23.26	39.53	93.02	19.94
PortfolioDisclosure	1,437	34.91	0.00	0.00	36.36	63.64	90.91	30.97
AssetDisclosure	1,437	24.20	0.00	0.00	18.18	40.91	95.45	27.48
Fund Variables								
NetIRR	1,437	16.51	-7.51	9.48	15.60	22.00	50.20	10.62
TVPI	1,437	1.93	0.72	1.40	1.74	2.22	5.32	0.81
DPI	1,437	1.02	0.00	0.26	0.86	1.56	3.87	0.88
FundSize	1,437	1,462.57	0.50	208.54	523.80	1,406.30	24,713.80	2,647.75
FundSeries	1,437	3.85	0.00	2.00	3.00	5.00	18.00	2.81
Fund ESG Risk & Impact								
PortfolioCompanies	1,437	9.36	1.00	4.00	7.00	11.00	106.00	10.04
ESGRisk	1,437	30.61	11.54	25.64	30.18	34.62	53.85	6.79
EnvRisk	1,437	28.82	0.00	16.67	26.39	38.89	77.78	15.33
SocRisk	1,437	37.69	0.00	30.83	36.67	42.22	70.00	9.35
GovRisk	1,437	22.81	0.00	19.05	23.21	27.47	57.14	6.65
AvgRiskExposure	1,437	3.38	0.20	2.74	3.28	3.88	10.00	1.10
LowRisk	1,437	28.86	0.00	0.00	25.00	44.44	100.00	25.82
ModerateRisk	1,437	55.88	0.00	33.33	56.25	77.78	100.00	29.54
HighRisk	1,437	11.73	0.00	0.00	0.00	18.18	100.00	19.07
VeryHighRisk	1,437	3.53	0.00	0.00	0.00	0.00	100.00	10.77
UnlikelyImpact	1,437	44.45	0.00	25.00	46.00	63.00	100.00	28.63
PossibleImpact	1,437	10.71	0.00	0.00	5.00	17.00	100.00	15.82
LikelyImpact	1,437	7.94	0.00	0.00	0.00	12.00	100.00	15.20
VeryLikelyImpact	1,437	36.93	0.00	14.00	33.00	50.00	100.00	30.21

¹² Other strategies include Balanced, Co-Investment, Direct Secondaries, Distressed PE, Hybrid, Mezzanine and Natural Resources.

Table 4: Descriptive Statistics – ESG Disclosures

Table 4 shows the average GP ESG disclosure rate for the different reporting levels for the full sample of GPs in Panel A (N=11,008). The table shows the GP ESG disclosure rates by *GPRegion*, *GPMainStrategy*, Quintiles of *GPFundsRaised* and *GPListed*.

Panel A	ESG Disclosure	Env Disclosure	Soc Disclosure	Gov Disclosure	Firm Disclosure	Portfolio Disclosure	Asset Disclosure
GPRegion							
Africa	12.97	5.07	11.50	17.30	11.96	18.79	12.02
Asia	2.99	1.50	2.47	3.97	3.57	3.24	1.75
Australasia	13.99	7.40	11.17	18.59	14.22	20.63	10.21
Europe	22.29	14.33	18.67	27.98	19.84	32.28	22.08
LATAM & Caribbean ¹³	8.30	3.82	6.19	11.56	9.41	10.05	5.27
Middle East	6.75	1.79	6.48	9.05	8.81	5.50	3.33
North America	8.64	2.35	7.12	12.31	11.83	6.47	3.51
GPMainStrategy							
Buyout	18.60	9.57	14.91	24.80	19.24	23.23	15.03
Growth	10.94	5.04	8.61	14.94	12.00	12.75	7.95
Venture Capital	5.00	1.84	4.39	6.75	6.36	4.51	2.57
Other	20.20	11.98	16.24	26.22	22.18	23.84	14.51
GPFundsRaised							
Quintile 1 (<\$20M)	2.66	0.49	1.98	4.01	3.98	1.49	0.65
Quintile 2 (<\$65M)	4.07	1.34	3.36	5.70	5.36	3.45	1.88
Quintile 3 (<\$174M)	6.40	2.42	5.23	8.84	7.81	6.53	3.56
Quintile 4 (<\$575M)	10.29	4.49	8.25	14.07	11.42	11.98	7.24
Quintile 5 (>=\$575M)	18.50	10.24	15.96	23.65	19.53	22.17	14.65
GPListed							
Not listed	8.04	3.51	6.63	10.87	9.22	8.76	5.36
Listed	37.67	27.88	34.65	43.79	43.48	39.77	25.28

¹³ LATAM = Latin America

Table 5: GP ESG Disclosure

Table 5 shows the coefficient estimates of regressing GP-level *ESGDisclosure* on aggregate GP-level fund performance. Fund performance (*NetIRR* and *TVPI*) is aggregated at the GP-level by first computing, for each fund, its percentile rank within *VintageYear*, *FundAssetClass*, and *FundRegion*, and then averaging these ranks equal-weighted across a GP's funds or value-weighted using called capital. All regression models include *GPCountry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	ESGDisc IRR EW (1)	ESGDisc IRR VW (2)	ESGDisc TVPI EW (3)	ESGDisc TVPI VW (4)
NetIRRPercentileRankEW	-0.063*** (0.024)			
NetIRRPercentileRankVW		-0.061*** (0.023)		
TVPIPercentileRankEW			-0.058** (0.025)	
TVPIPercentileRankVW				-0.057** (0.024)
AvgFundAge	1.384 (2.381)	1.347 (2.379)	1.193 (2.385)	1.177 (2.384)
AvgFundSize	1.959** (0.852)	2.015** (0.846)	1.984** (0.867)	2.023** (0.859)
AvgFundSeries	-2.378 (1.677)	-2.402 (1.680)	-2.493 (1.681)	-2.498 (1.680)
GPAge	2.096 (1.534)	2.118 (1.539)	2.271 (1.556)	2.286 (1.558)
GPSFundsRaised	4.008*** (0.640)	3.956*** (0.634)	3.980*** (0.655)	3.946*** (0.649)
GPListed	20.805*** (3.215)	20.815*** (3.224)	20.640*** (3.298)	20.652*** (3.298)
GPMainStrategy=Growth	-1.515 (1.714)	-1.520 (1.716)	-1.346 (1.722)	-1.366 (1.723)
GPMainStrategy=Venture Capital	-7.197*** (1.513)	-7.168*** (1.515)	-6.993*** (1.506)	-7.013*** (1.506)
GPMainStrategy=Other	4.930* (2.760)	5.007* (2.763)	5.018* (2.789)	5.056* (2.788)
GPRegion=Asia	-12.850*** (1.420)	-13.230*** (1.398)	-12.078*** (1.540)	-12.440*** (1.486)
GPRegion=Australasia	-16.883*** (4.036)	-17.271*** (4.015)	-16.635*** (4.074)	-16.983*** (4.059)
GPRegion=Europe	-1.201 (2.572)	-1.594 (2.598)	-1.024 (2.570)	-1.368 (2.594)
GPRegion=LATAM & Caribbean	-29.742*** (3.102)	-30.215*** (3.085)	-28.081*** (3.329)	-28.538*** (3.256)
GPRegion=Middle East	-27.754*** (3.842)	-27.777*** (3.955)	-27.725*** (3.804)	-27.735*** (3.920)
GPRegion=North America	-24.229*** (1.799)	-24.556*** (1.838)	-24.096*** (1.838)	-24.415*** (1.876)
GPCountry FE	Yes	Yes	Yes	Yes
Observations	673	673	673	673
R-squared	0.597	0.597	0.596	0.596

Table 6: Fund Performance and ESG Disclosure Quartiles

Table 6 shows the coefficient estimates of regressing fund performance on *ESGDisclosureQuartile*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. *ESGDisclosureQuartile1* is the omitted benchmark category. For each fund performance metric four regression models are estimated. The first column includes no GP & fund controls or fixed effects, the second column includes GP & fund controls, the third column includes GP & fund controls as well as *VintageYear* and *GPCountry* fixed effects, and the fourth column is the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	TVPI	DPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ESGDisclosureQuartile2	2.487*** (0.844)	1.379 (1.033)	0.431 (1.070)	0.561 (1.080)	-0.188** (0.076)	-0.100 (0.085)	-0.171* (0.088)	-0.152* (0.089)	0.073 (0.064)	-0.023 (0.074)	-0.076 (0.067)	-0.079 (0.068)
ESGDisclosureQuartile3	1.945** (0.877)	0.052 (1.058)	-0.707 (1.100)	-0.376 (1.122)	-0.154** (0.075)	-0.117 (0.089)	-0.175** (0.080)	-0.159* (0.082)	0.115* (0.067)	-0.068 (0.083)	-0.056 (0.069)	-0.037 (0.068)
ESGDisclosureQuartile4	-0.008 (0.821)	-2.722** (1.257)	-4.562*** (1.430)	-4.095*** (1.494)	-0.369*** (0.067)	-0.334*** (0.092)	-0.447*** (0.098)	-0.431*** (0.101)	0.017 (0.060)	-0.174* (0.089)	-0.217** (0.089)	-0.183** (0.091)
GP & Fund Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
VintageYear and GPCountry FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
FundRegion and FundIndustry FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.011	0.115	0.185	0.196	0.026	0.115	0.281	0.291	0.003	0.120	0.558	0.569

Table 7a: Fund Performance and ESG pillar-specific ESG Disclosure Quartiles

Table 7a shows the coefficient estimates of regressing fund performance on ESG pillar-specific *DisclosureQuartile*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. ESG pillar-specific *DisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EnvDisclosureQuartile2	-			-			-		
EnvDisclosureQuartile3	-0.345 (0.857)			0.005 (0.065)			0.019 (0.049)		
EnvDisclosureQuartile4	-3.811*** (1.169)			-0.215*** (0.081)			-0.125* (0.069)		
SocDisclosureQuartile2		-0.792 (0.866)			-0.114* (0.066)			-0.108** (0.055)	
SocDisclosureQuartile3		-1.715** (0.857)			-0.153** (0.060)			-0.078 (0.051)	
SocDisclosureQuartile4		-4.184*** (1.128)			-0.329*** (0.082)			-0.147** (0.068)	
GovDisclosureQuartile2			0.794 (1.075)			-0.105 (0.076)			-0.058 (0.063)
GovDisclosureQuartile3			-0.045 (1.218)			-0.153* (0.084)			0.014 (0.070)
GovDisclosureQuartile4			-2.856* (1.489)			-0.347*** (0.095)			-0.163* (0.091)
GP & Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.193	0.192	0.192	0.283	0.287	0.286	0.568	0.569	0.570

Table 7b: Fund Performance and Governance pillar-specific ESG Disclosure Quartiles

Table 7b shows the coefficient estimates of regressing fund performance on Governance pillar-specific *DisclosureQuartile*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. Governance pillar-specific *DisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FirmDisclosureQuartile2	1.139 (1.086)			0.000 (0.086)			-0.049 (0.068)		
FirmDisclosureQuartile3	1.663 (1.137)			-0.034 (0.085)			0.015 (0.071)		
FirmDisclosureQuartile4	-3.291** (1.430)			-0.309*** (0.099)			-0.161* (0.088)		
PortfolioDisclosureQuartile2		1.021 (0.933)			-0.059 (0.072)			-0.063 (0.058)	
PortfolioDisclosureQuartile3		-0.519 (0.990)			-0.120* (0.072)			-0.018 (0.058)	
PortfolioDisclosureQuartile4		-3.540*** (1.295)			-0.321*** (0.085)			-0.185** (0.078)	
AssetDisclosureQuartile2			-0.826 (0.898)			-0.145** (0.065)			-0.085 (0.053)
AssetDisclosureQuartile3			-2.111** (0.939)			-0.142** (0.063)			-0.055 (0.056)
AssetDisclosureQuartile4			-4.106*** (1.206)			-0.332*** (0.077)			-0.137** (0.070)
GP & Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.201	0.195	0.192	0.289	0.286	0.288	0.570	0.570	0.568

Table 7c: Fund Performance and Theme-specific ESG Disclosure Quartiles

Table 7c shows the coefficient estimates of regressing fund performance on Theme specific *DisclosureQuartile*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. Theme-specific *DisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	TVPI	DPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
InvestmentStrategyDiscQuartile2	0.961 (0.969)				-0.051 (0.075)				-0.060 (0.060)			
InvestmentStrategyDiscQuartile3	-1.176 (1.027)				-0.175** (0.071)				-0.068 (0.061)			
InvestmentStrategyDiscQuartile4	-2.173* (1.142)				-0.271*** (0.080)				-0.088 (0.069)			
InternalOperationsDiscQuartile2		-0.876 (1.022)				-0.115 (0.075)				-0.088 (0.062)		
InternalOperationsDiscQuartile3		-0.687 (1.150)				-0.172** (0.082)				-0.063 (0.069)		
InternalOperationsDiscQuartile4		-4.372*** (1.344)				-0.369*** (0.091)				-0.231*** (0.085)		
EmissionsDiscQuartile2			-				-				-	
EmissionsDiscQuartile3			0.477 (1.604)				0.047 (0.140)				0.065 (0.101)	
EmissionsDiscQuartile4			-3.615*** (1.050)				-0.222*** (0.072)				-0.115* (0.067)	
DEIDiscQuartile2				0.180 (0.783)				-0.035 (0.068)				-0.035 (0.048)
DEIDiscQuartile3				-0.791 (0.888)				-0.163*** (0.063)				-0.105** (0.051)
DEIDiscQuartile4				-4.118*** (1.130)				-0.353*** (0.077)				-0.189*** (0.069)
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.188	0.195	0.193	0.195	0.283	0.288	0.284	0.291	0.567	0.571	0.568	0.569

Table 8: ESG Risk and ESG Disclosure Quartiles

Table 8 shows the coefficient estimates of regressing different ESG risk metrics on *ESGDisclosureQuartile*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. *ESGDisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	ESGRisk (1)	AvgRisk Exposure (2)	Low Risk (3)	Moderate Risk (4)	High Risk (5)	VeryHigh Risk (6)
ESGDisclosureQuartile2	0.053 (0.616)	-0.013 (0.095)	-1.100 (2.345)	1.476 (2.625)	-0.904 (1.930)	0.528 (0.942)
ESGDisclosureQuartile3	-0.146 (0.713)	-0.007 (0.105)	0.276 (2.486)	-1.594 (2.788)	1.500 (2.110)	-0.181 (0.949)
ESGDisclosureQuartile4	-0.164 (0.838)	0.128 (0.133)	-3.558 (3.215)	1.596 (3.623)	-0.123 (2.383)	2.085 (1.508)
GP & Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.281	0.253	0.227	0.291	0.243	0.157

Table 9: Fund Performance and ESG Disclosure Quartiles controlling for ESG Risk

Table 9 shows the coefficient estimates of regressing fund performance on *ESGDisclosureQuartile* and different ESG risk metrics. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. *ESGDisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ESGDisclosureQuartile2	0.563 (1.081)	0.563 (1.080)	0.537 (1.080)	-0.152* (0.089)	-0.152* (0.089)	-0.152* (0.089)	-0.079 (0.068)	-0.079 (0.068)	-0.082 (0.068)
ESGDisclosureQuartile3	-0.382 (1.123)	-0.375 (1.122)	-0.353 (1.116)	-0.160* (0.082)	-0.159* (0.082)	-0.159* (0.082)	-0.037 (0.068)	-0.037 (0.068)	-0.034 (0.067)
ESGDisclosureQuartile4	-4.101*** (1.494)	-4.116*** (1.497)	-4.121*** (1.481)	-0.431*** (0.101)	-0.431*** (0.101)	-0.430*** (0.101)	-0.184** (0.091)	-0.183** (0.091)	-0.185** (0.091)
ESGRisk	-0.039 (0.046)			-0.004 (0.003)			-0.002 (0.003)		
AvgRiskExposure		0.167 (0.278)			0.001 (0.019)			-0.001 (0.015)	
ModerateRisk			0.024** (0.012)			0.001 (0.001)			0.001** (0.001)
HighRisk			0.009 (0.020)			0.000 (0.001)			-0.001 (0.001)
VeryHighRisk			-0.005 (0.027)			-0.001 (0.002)			-0.000 (0.001)
GP & Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.197	0.197	0.199	0.292	0.291	0.291	0.569	0.569	0.571

Table 10: ESG Impact and ESG Disclosure Quartiles

Table 10 shows the coefficient estimates of regressing different *Impact* metrics on *ESGDisclosureQuartile*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. *ESGDisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	Unlikely Impact (1)	Possible Impact (2)	Likely Impact (3)	VeryLikely Impact (4)
ESGDisclosureQuartile2	0.045 (2.572)	-1.024 (1.361)	0.837 (1.347)	0.138 (2.773)
ESGDisclosureQuartile3	-6.191** (2.786)	0.283 (1.604)	1.627 (1.619)	4.319 (3.065)
ESGDisclosureQuartile4	-6.271* (3.620)	-0.979 (2.486)	-1.178 (2.018)	8.493** (4.128)
GP & Fund Controls	Yes	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes	Yes
Observations	1,437	1,437	1,437	1,437
R-squared	0.261	0.122	0.077	0.346

Table 11: Fund Performance and ESG Disclosure Quartiles controlling for ESG Impact

Table 11 shows the coefficient estimates of regressing fund performance on *ESGDisclosureQuartile* and ESG impact potential. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. *ESGDisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	TVPI	DPI
	(1)	(2)	(3)
ESGDisclosureQuartile2	0.577 (1.087)	-0.151* (0.089)	-0.080 (0.068)
ESGDisclosureQuartile3	-0.363 (1.123)	-0.154* (0.081)	-0.031 (0.067)
ESGDisclosureQuartile4	-4.102*** (1.495)	-0.431*** (0.101)	-0.179** (0.090)
PossibleImpact	0.007 (0.017)	-0.000 (0.001)	-0.001 (0.001)
LikelyImpact	-0.010 (0.018)	-0.002* (0.001)	-0.001 (0.001)
VeryLikelyImpact	0.000 (0.014)	-0.000 (0.001)	-0.001 (0.001)
GP & Fund Controls	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes
Observations	1,437	1,437	1,437
R-squared	0.197	0.292	0.570

Table 12: Fund Performance and ESG Labels

Table 12 shows the coefficient estimates of regressing fund performance on *ESGLabel*. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. The independent variable *ESGLabel* is an indicator variable taking the value of one if a fund is tagged with one of the eight ESG labels and zero otherwise. For each fund performance metric four regression models are estimated. The first column includes no GP & fund controls or fixed effects, the second column includes GP & fund controls, the third column includes GP & fund controls as well as *VintageYear* and *GPCountry* fixed effects, and the fourth column is the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	TVPI	DPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ESGLabel	0.330 (1.613)	-0.191 (1.485)	0.954 (1.505)	1.104 (1.527)	-0.238*** (0.078)	-0.195** (0.086)	-0.048 (0.083)	-0.027 (0.080)	-0.145 (0.100)	-0.087 (0.104)	0.088 (0.094)	0.077 (0.093)
GP & Fund Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
VintageYear and GPCountry FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
FundRegion and FundIndustry FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.000	0.101	0.169	0.183	0.003	0.104	0.266	0.277	0.001	0.117	0.554	0.566

Table 13: Fund Performance and individual ESG Labels

Table 13 shows the coefficient estimates of regressing fund performance on the different ESG labels. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. The independent variables are indicator variables taking the value of one if a fund is tagged with one of the eight respective ESG labels and zero otherwise. For each fund performance metric four regression models are estimated. The first column includes no GP & fund controls or fixed effects, the second column includes GP & fund controls, the third column includes GP & fund controls as well as *VintageYear* and *GPCountry* fixed effects, and the fourth column is the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	TVPI	DPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ImpactLabel	0.531 (3.920)	-0.812 (3.189)	-3.217 (3.103)	-3.459 (3.123)	-0.206 (0.153)	-0.229 (0.149)	-0.216 (0.135)	-0.208 (0.144)	0.080 (0.225)	0.033 (0.172)	0.194 (0.144)	0.165 (0.151)
ESGIntegrationLabel	0.375 (2.748)	0.646 (2.617)	1.801 (2.399)	1.956 (2.479)	-0.115 (0.140)	0.073 (0.161)	0.114 (0.128)	0.108 (0.130)	-0.009 (0.175)	0.172 (0.203)	0.222 (0.151)	0.224 (0.151)
ClimateLabel	-3.372 (5.046)	-1.738 (4.781)	-4.034 (3.123)	-4.413 (3.193)	-0.196 (0.270)	-0.274 (0.342)	-0.303 (0.185)	-0.282 (0.185)	0.014 (0.445)	-0.063 (0.406)	-0.142 (0.146)	-0.156 (0.156)
EnergyTransitionLabel	-10.654*** (0.307)	-9.669*** (2.249)	-9.534*** (2.801)	-6.791* (3.704)	-0.773*** (0.025)	-0.326*** (0.111)	-0.221 (0.176)	-0.110 (0.233)	-0.875*** (0.022)	-0.536*** (0.142)	-0.106 (0.177)	-0.034 (0.253)
SDGLabel	0.158 (5.808)	-0.546 (5.756)	6.031 (4.844)	5.799 (4.917)	0.037 (0.180)	-0.084 (0.202)	0.204 (0.206)	0.167 (0.206)	-0.383 (0.267)	-0.625** (0.261)	-0.579*** (0.201)	-0.575*** (0.210)
SFDR8Label	2.293 (2.198)	0.998 (2.191)	3.257 (2.424)	3.567 (2.318)	-0.154 (0.117)	-0.199 (0.125)	-0.002 (0.153)	0.057 (0.138)	-0.045 (0.143)	0.003 (0.159)	0.144 (0.187)	0.135 (0.191)
ShariaCompliantLabel	-19.564*** (0.307)	-15.359*** (1.062)	-9.830*** (3.040)	-10.210*** (3.027)	-1.073*** (0.025)	-0.871*** (0.078)	-0.713** (0.294)	-0.695** (0.297)	-0.677*** (0.022)	-0.759*** (0.080)	-0.419** (0.171)	-0.415** (0.178)
GP & Fund Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
VintageYear and GPCountry FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
FundRegion and FundIndustry FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.004	0.104	0.173	0.186	0.004	0.106	0.267	0.278	0.002	0.119	0.556	0.568

Appendix A1: Variable Definitions

Table A1 shows variable definitions and descriptions of the variables used in the empirical analysis.

Variables	Description
GP Variables	
<i>GPFundsRaised</i>	Total value of private equity funds raised by a GP in the last 10 years in US dollars.
<i>GPListed</i>	An indicator that is equal to 1 if GP is listed on the stock exchange and 0 if the GP is not listed.
<i>GPAge</i>	2025 – year the GP was established.
<i>GPCountry</i>	Country where the GPs headquarter is based in.
<i>GPMainStrategy</i>	Main private equity strategy of the firm.
<i>PRIMembership</i>	An indicator that is equal to 1 if GP is a signatory of UN PRI and 0 if the GP is not a signatory.
<i>OtherMemberships</i>	An indicator that is equal to 1 if GP is a member of any of the following ESG-related industry initiatives (e.g., United Nations Global Compact, GRESB, CDP Climate Change) and 0 if the GP is not a member of any of those.
GP ESG Disclosure	
<i>ESGDisclosure</i>	The percentage of disclosed ESG management indicators. In total there are 76 management indicators.
<i>EnvDisclosure</i>	The percentage of disclosed environmental management indicators. In total there are 16 environmental management indicators.
<i>SocDisclosure</i>	The percentage of disclosed social management indicators. In total there are 23 social management indicators.
<i>GovDisclosure</i>	The percentage of disclosed governance management indicators. In total there are 37 governance management indicators.
<i>FirmDisclosure</i>	The percentage of disclosed management indicators at the firm-level (GP). In total there are 43 firm-level management indicators.
<i>PortfolioDisclosure</i>	The percentage of disclosed management indicators at the portfolio-level. In total there are 11 portfolio-level management indicators.
<i>AssetDisclosure</i>	The percentage of disclosed management indicators at the asset-level. In total there are 22 asset-level management indicators.
<i>InvestmentStrategyDisclosure</i>	The percentage of disclosed investment strategy management indicators. In total there are 22 environmental management indicators.
<i>InternalOperationsDisclosure</i>	The percentage of disclosed internal operations management indicators. In total there are 30 environmental management indicators.
<i>EmissionsDisclosure</i>	The percentage of disclosed emissions management indicators. In total there are 11 environmental management indicators.
<i>DEIDisclosure</i>	The percentage of disclosed DEI management indicators. In total there are 13 environmental management indicators.

Fund Variables	
<i>FundSize</i>	The fund size, denominated or converted to US dollars.
<i>FundSeries</i>	The number indicates the rolling order of a fund within a specific fund series.
<i>FundIndustry</i>	The core industries a fund invests in. If multiple industries are listed under core industries, the fund is classified as ‘Diversified’.
<i>FundRegion</i>	The main/primary geographic scope of the fund.
<i>FundAssetClass</i>	The asset class of the fund (i.e, private equity or venture capital).
<i>FundStrategy</i>	The strategy of the fund (i.e., buyout, growth, venture capital, etc.).
<i>NetIRR</i>	The net IRR earned by an LP to date after fees & carry.
<i>TVPI</i>	The ratio between the value that the LP has derived from its interest in the partnership – i.e. DPI plus the value of the LP’s remaining interest in the partnership (RVPI) – and its total cash investment in the partnership.
<i>DPI</i>	The ratio between the called-up capital that has been distributed to LPs and its total cash investment in the partnership.
Fund Labels	
<i>ESGLabel</i>	An indicator variable taking the value of 1 if fund is tagged with any of the eight ESG labels track by Preqin, and 0 otherwise.
<i>ImpactLabel</i>	An indicator variable taking the value of 1 if fund is tagged with an Impact label, and 0 otherwise.
<i>ESGIntegrationLabel</i>	An indicator variable taking the value of 1 if fund is tagged with an ESG Integration label, and 0 otherwise.
<i>ClimateLabel</i>	An indicator variable taking the value of 1 if fund is tagged with a Climate label, and 0 otherwise.
<i>EnergyTransitionLabel</i>	An indicator variable taking the value of 1 if fund is tagged with an Energy Transition label, and 0 otherwise.
<i>SDGLabel</i>	An indicator variable taking the value of 1 if fund is tagged with an SDG label, and 0 otherwise.
<i>SFDR8Label</i>	An indicator variable taking the value of 1 if fund is tagged with an SFDR8 label, and 0 otherwise.
<i>ShariaCompliantLabel</i>	An indicator variable taking the value of 1 if fund is tagged with a Sharia Compliant label, and 0 otherwise.
Fund ESG Risk & Impact	
<i>ESGRisk</i>	The percentage-based measure of a fund’s exposure to financially material ESG risks. It is calculated as the ratio of the number of material SASB ESG risk factors flagged across all portfolio companies in a given fund to the maximum possible number of risk factors (26 ESG risk factors per company multiplied by the number of companies in the fund), multiplied by 100. Formally: $\frac{\sum_i \# \text{ of material SASB ESG factors for each company in a fund}}{26 * \# \text{ of companies in fund}} * 100$
<i>EnvRisk</i>	The percentage-based measure of a fund’s exposure to financially material environmental risks. It is calculated as the ratio of the number of material

environmental risk factors flagged across all portfolio companies in a given fund to the maximum possible number of environmental risk factors (9 environmental factors per company multiplied by the number of companies in the fund), multiplied by 100.

SocRisk

The percentage-based measure of a fund's exposure to financially material social risks. It is calculated as the ratio of the number of material social risk factors flagged across all portfolio companies in a given fund to the maximum possible number of environmental risk factors (10 social factors per company multiplied by the number of companies in the fund), multiplied by 100.

GovRisk

The percentage-based measure of a fund's exposure to financially material governance risks. It is calculated as the ratio of the number of material governance risk factors flagged across all portfolio companies in a given fund to the maximum possible number of environmental risk factors (7 governance factors per company multiplied by the number of companies in the fund), multiplied by 100.

AvgRiskExposure

The average risk exposure score of a fund's portfolio companies. Preqin's risk exposure estimate is based on the asset's potential ESG risk based on industry sector and geography. The score for each portfolio company is between 0 and 10.

*LowRisk, ModerateRisk,
HighRisk, VeryHighRisk*

The percentage share of a fund's portfolio companies classified into one of the four risk exposure bands – Low, Moderate, High, Very High – based on the asset's risk exposure estimate.

*UnlikelyImpact,
PossibleImpact,
LikelyImpact,
VeryLikelyImpact*

The percentage share of a fund's portfolio companies classified into one of four categories – Unlikely, Possible, Likely, or Very Likely – reflecting the assessed potential to generate positive environmental or social outcomes alongside financial returns.

Appendix A2: Overview ESG Disclosure Management Indicators

Table A2 provides an overview of the 76 GP ESG Disclosure management indicators by source framework, ESG pillar, governance type and theme.

Source Frameworks	Number of Management Indicators
Ratings Providers	39
PRI	13
ILPA	11
TCFD	6
SFDR	5
SASB	2
ESG Pillar	Number of Management Indicators
Environmental	16
Social	23
Governance	37
Governance Type	Number of Management Indicators
Firm-level	43
Portfolio-level	11
Asset-level	22
Theme	Number of Management Indicators
Internal Operations	30
Investment Strategy	22
Emissions	11
DEI	13

Appendix A3: Overview of ESG Disclosure Management Indicators

Table A3 provides an overview of Preqin's GP-level ESG management indicators across the firm-, portfolio-, and asset-level. The *ESG Pillar* column categorizes each management indicator under the Environmental, Social, or Governance pillar. The *Theme* column identifies themes specific to private markets, while the *Source Framework* column indicates the framework from which each management indicator is derived. Panels A and B report the proportion of GPs within each respective panel that disclose the corresponding management indicator. The indicators are organized by governance type and ranked in descending order based on the disclosure rates in Panel A. Details on Preqin's methodology can be found in Preqin's Overview and Methodology Document on ESG Solutions (<https://docs.preqin.com/pro/Preqin-ESG-Solutions-Methodology.pdf>).

GP ESG Disclosure Indicators	ESG Pillar	Theme	Source Frameworks	Panel A	Panel B
GP Firm-level Disclosure Indicators					
Governing, leadership, or executive bodies, including the board of directors	Governance	Internal Operations	Ratings Providers	62.8%	95.4%
Ownership structure of the firm	Governance	Internal Operations	Ratings Providers	29.9%	55.7%
Privacy policy	Social	Internal Operations	Ratings Providers	28.1%	62.1%
Any mention of ESG consideration in operations	Governance	Internal Operations	SASB	25.2%	66.6%
Gender breakdown of the senior management	Social	DEI	Ratings Providers	24.0%	69.7%
List of investors by type	Governance	Internal Operations	PRI	23.4%	63.7%
Registered investment advisor or a registered broker dealer status	Governance	Internal Operations	ILPA	21.2%	63.3%
Code of conduct	Governance	Internal Operations	ILPA	18.8%	60.0%
Gender breakdown of the executive committee	Social	DEI	Ratings Providers	17.1%	44.6%
Statements, policies, or initiatives related to climate change	Environmental	Internal Operations	TCFD	14.2%	40.3%
Insider trading policy	Governance	Internal Operations	Ratings Providers	13.4%	47.0%
Board of directors	Governance	Internal Operations	Ratings Providers	12.4%	27.5%
Dedicated sustainability report	Governance	Internal Operations	Ratings Providers	11.0%	36.0%
Development or training programs	Social	Internal Operations	Ratings Providers	10.7%	38.2%
DEI policy or initiative	Social	DEI	ILPA	9.6%	35.2%
Tracks employee diversity	Social	DEI	Ratings Providers	6.3%	20.7%
Whistleblower or anonymous incident reporting process	Governance	Internal Operations	Ratings Providers	5.7%	16.6%
Gender breakdown of the wider company	Social	DEI	Ratings Providers	5.4%	17.4%
ESG integration within performance reviews and/or compensation mechanisms	Governance	Internal Operations	PRI	5.4%	20.8%
Political donations and/or lobbying expenditure policy	Governance	Internal Operations	Ratings Providers	4.9%	17.8%
Modern slavery or human rights policy	Social	Internal Operations	Ratings Providers	4.9%	16.5%
GHG emissions	Environmental	Emissions	TCFD	4.6%	17.7%
Anti-money laundering and/or "know your client" (AML KYC) policy	Governance	Internal Operations	Ratings Providers	4.6%	13.4%

Gender breakdown of the board of directors	Social	DEI	Ratings Providers	4.4%	8.2%
Emissions targets	Environmental	Emissions	Ratings Providers	4.3%	13.8%
Sustainable supply chain framework	Governance	Internal Operations	Ratings Providers	3.7%	14.1%
GHG emissions: Scope 2	Environmental	Emissions	SFDR	3.6%	15.2%
Family Leave policy	Social	DEI	ILPA	3.6%	11.6%
GHG emissions: Scope 1	Environmental	Emissions	SFDR	3.4%	14.3%
GHG emissions: Scope 3	Environmental	Emissions	SFDR	3.4%	14.7%
DEI training	Social	Internal Operations	ILPA	3.2%	14.7%
Employee engagement surveys	Social	Internal Operations	ILPA	3.1%	11.1%
Code of Business Ethics training	Governance	Internal Operations	ILPA	2.7%	9.1%
Employee training on data security or privacy	Governance	Internal Operations	Ratings Providers	2.0%	4.9%
Adherence to any ISO standards	Social	Internal Operations	Ratings Providers	1.9%	4.2%
Waste generation metrics	Environmental	Internal Operations	Ratings Providers	1.7%	3.0%
Employee training hours	Governance	Internal Operations	Ratings Providers	1.7%	3.4%
Anti-money laundering and terrorist financing training	Governance	Internal Operations	Ratings Providers	1.5%	4.2%
Management training	Governance	Internal Operations	Ratings Providers	1.4%	2.5%
Breakdown of pay details	Social	DEI	Ratings Providers	1.3%	3.1%
Spending on political donations and/or lobbying expenditures	Governance	Internal Operations	Ratings Providers	1.1%	3.4%
Adopts a green building or energy management standard	Environmental	Internal Operations	Ratings Providers	1.1%	4.3%
Training for investment professionals on ESG risks and opportunities in investment activities	Governance	Internal Operations	PRI	0.7%	3.9%

GP Portfolio-level Disclosure Indicators

Any mention of ESG consideration in investing	Governance	Investment Strategy	SASB	22.4%	64.2%
Policy specifying how ESG factors are used before investing in portfolio companies/assets	Governance	Investment Strategy	PRI	16.0%	53.2%
Dedicated ESG investment policy	Governance	Investment Strategy	PRI	15.8%	53.2%
Dedicated ESG investment staff	Governance	Investment Strategy	PRI	13.3%	44.9%
ESG due diligence reporting lines	Governance	Investment Strategy	PRI	11.1%	39.7%
List of exclusionary screening factors	Governance	Investment Strategy	Ratings Providers	6.5%	21.1%
Total AUM as subject to ESG criteria or policies	Governance	Investment Strategy	PRI	6.1%	25.7%
ESG commitments included in fund documents	Governance	Investment Strategy	PRI	5.5%	25.3%
DEI due diligence reporting lines	Social	DEI	ILPA	1.8%	8.6%
ESG risks and opportunities included on Limited Partners Advisory Committee and Annual Investor Meeting Agenda	Governance	Investment Strategy	PRI	1.3%	8.3%
ESG considerations included in deal documentation	Governance	Investment Strategy	PRI	0.6%	1.3%

GP Asset-level Disclosure Indicators					
Policy detailing engagement processes with portfolio companies/assets	Governance	Investment Strategy	Ratings Providers	15.6%	51.6%
Engagement process or considerations specifically focused on ESG issues with portfolio companies/assets	Governance	Investment Strategy	Ratings Providers	15.5%	51.6%
Policy specifying how ESG factors are used after investing in portfolio companies/assets, or in company exits	Governance	Investment Strategy	PRI	14.3%	49.2%
Reporting or monitoring portfolio companies/assets using ESG KPIs	Governance	Investment Strategy	PRI	12.8%	44.6%
Investments in portfolio companies/assets explicitly aligned with the UN Sustainable Development Goals	Social	Investment Strategy	Ratings Providers	9.3%	25.9%
Environmental impact studies conducted on portfolio companies/assets	Environmental	Investment Strategy	ILPA	8.1%	31.4%
Social impact studies conducted on portfolio companies/assets	Social	Investment Strategy	Ratings Providers	7.6%	32.4%
DEI policy or initiative for portfolio companies/assets	Social	DEI	ILPA	4.6%	22.3%
ESG educational programs designed and run for portfolio companies/assets	Social	Investment Strategy	Ratings Providers	4.2%	22.7%
Share of portfolio companies/assets where engagements were conducted on ESG policies or issues	Governance	Investment Strategy	Ratings Providers	4.1%	18.6%
GHG emissions of portfolio companies/assets	Environmental	Emissions	Ratings Providers	3.7%	14.6%
Emissions targets for portfolio companies/assets	Environmental	Emissions	TCFD	3.4%	15.9%
Gender breakdown of the wider company at the portfolio company-/asset-level	Social	DEI	Ratings Providers	2.8%	11.7%
Gender breakdown of the executive committee or senior management at the portfolio company-/asset-level	Social	DEI	Ratings Providers	2.6%	10.4%
GHG intensity of portfolio companies/assets	Environmental	Emissions	SFDR	2.2%	9.7%
GHG emissions: Scope 3 of portfolio companies/assets	Environmental	Emissions	TCFD	2.1%	9.1%
GHG emissions: Scope 2 of portfolio companies/assets	Environmental	Emissions	TCFD	2.1%	8.6%
GHG emissions: Scope 1 of portfolio companies/assets	Environmental	Emissions	TCFD	2.1%	8.5%
Code of conduct for portfolio companies/assets	Governance	Investment Strategy	Ratings Providers	2.0%	10.8%
Employee engagement surveys for portfolio companies/assets	Social	Investment Strategy	ILPA	2.0%	12.9%
Breakdown of pay details at the portfolio company-level	Social	DEI	Ratings Providers	1.3%	4.3%
Breakdown of energy efficiency for real estate assets	Environmental	Investment Strategy	SFDR	0.7%	3.3%

Appendix A4: Descriptive Statistics – ESG Disclosures and ESG Risk

Table A4 presents the cross-tabulation of funds by *ESGDisclosureQuartile* and *ESGRiskQuartile* for the performance sample (N = 1,437). The table shows the distribution of funds across the four ESG disclosure quartiles (rows) and ESG risk quartiles (columns). The first row in each panel reports the absolute number of funds in each cell, while the second row displays the corresponding row percentages, and the third row shows the column percentages.

Panel B	ESGRisk Quartile1	ESGRisk Quartile2	ESGRisk Quartile3	ESGRisk Quartile4	Total
ESGDisclosureQuartile1	124 33.88% 33.24%	107 29.23% 30.92%	70 19.13% 18.72%	65 17.76% 18.90%	366 100.00% 25.47%
ESGDisclosureQuartile2	87 23.97% 23.32%	85 23.42% 24.57%	102 28.10% 27.27%	89 24.52% 25.87%	363 100.00% 25.26%
ESGDisclosureQuartile3	86 23.76% 23.06%	83 22.93% 23.99%	98 27.07% 26.20%	95 26.24% 27.62%	362 100.00% 25.19%
ESGDisclosureQuartile4	76 21.97% 20.38%	71 20.52% 20.52%	104 30.06% 27.81%	95 27.46% 27.62%	346 100.00% 24.08%
Total	373 25.96% 100.00%	346 24.08% 100.00%	374 26.03% 100.00%	344 23.94% 100.00%	1,437 100.00% 100.00%

Appendix A5: Descriptive Statistics – ESG Impact

Table A5 presents the cross-tabulation of funds by *ESGDisclosureQuartile* and their distribution across ESG impact categories for the performance sample (N = 1,437). The table reports the corresponding distribution across ESG impact potential categories (Unlikely, Possible, Likely, Very Likely). Each row represents an ESG disclosure quartile, allowing comparison of expected impact potential across different levels of GP transparency.

ESG Impact	Unlikely Impact	Possible Impact	Likely Impact	VeryLikely Impact
ESGDisclosureQuartile1	46.96	8.80	6.58	37.70
ESGDisclosureQuartile2	45.75	10.55	8.34	35.39
ESGDisclosureQuartile3	42.96	11.96	9.28	35.83
ESGDisclosureQuartile4	41.98	11.62	7.56	38.87
Total	44.45	10.71	7.94	36.93

Online Appendix OA1: GP ESG Disclosure by Country

Table OA1 shows the GP *ESG Disclosure* by headquarter country of the GP based on Panel A.

Panel A	N	Mean	Min	P25	Median	P75	Max	Std. Dev
ESG Disclosure								
Australia	108	14.66	0.00	2.63	6.58	25.33	69.74	15.67
Austria	12	16.34	0.00	3.62	13.16	26.64	39.47	14.72
Belgium	45	15.18	1.32	6.58	11.84	18.42	50.00	12.55
Brazil	101	9.84	0.00	1.32	2.63	11.84	68.42	14.97
Canada	181	10.83	0.00	1.32	3.95	10.53	71.05	16.18
Chile	20	5.33	0.00	0.99	1.97	3.95	61.84	13.50
China	3,008	1.00	0.00	0.00	0.00	0.00	64.47	4.82
Czech Republic	14	7.61	1.32	1.32	2.63	14.47	21.05	7.68
Denmark	44	20.63	0.00	3.95	16.45	34.21	57.89	17.64
Egypt	16	9.29	0.00	2.63	4.61	14.47	26.32	8.89
Estonia	12	12.72	0.00	2.30	7.89	17.43	57.89	16.21
Finland	54	23.83	0.00	6.91	17.76	33.55	81.58	21.26
France	201	29.00	0.00	9.21	28.95	42.11	82.89	21.48
Germany	163	19.64	0.00	3.95	15.79	28.95	73.68	18.11
Hong Kong SAR - China	136	12.94	0.00	1.32	3.95	17.43	84.21	18.63
India	246	6.56	0.00	1.32	2.63	5.26	71.05	10.69
Indonesia	19	6.58	0.00	1.32	2.63	3.95	64.47	14.57
Ireland	19	14.34	1.32	4.61	13.16	19.08	34.21	10.30
Israel	107	6.07	0.00	1.32	3.95	5.26	48.68	8.73
Italy	72	24.82	0.00	3.95	21.71	37.17	84.21	20.64
Japan	302	7.17	0.00	0.00	1.32	3.95	76.32	14.46
Luxembourg	47	22.79	0.00	4.61	17.11	37.50	68.42	20.07
Malaysia	18	15.72	0.00	1.32	6.58	29.93	53.95	17.99
Mauritius	13	24.09	0.00	1.32	26.32	39.47	52.63	19.85
Mexico	33	6.74	0.00	0.00	2.63	6.58	47.37	10.75
Netherlands	97	19.10	0.00	3.95	14.47	26.32	78.95	18.10
New Zealand	22	10.71	0.00	1.32	4.61	20.39	40.79	11.57
Nigeria	19	9.97	0.00	2.63	3.95	15.13	52.63	13.12
Norway	28	33.65	1.32	13.16	22.37	58.88	78.95	26.16
Poland	27	11.94	0.00	1.97	3.95	11.18	64.47	17.86
Portugal	31	16.94	0.00	3.95	17.11	25.00	46.05	12.91
Puerto Rico	16	5.59	0.00	1.32	3.29	7.89	26.32	6.33
Saudi Arabia	18	8.33	0.00	2.63	5.26	10.20	44.74	10.41
Singapore	182	10.21	0.00	1.32	3.95	13.16	63.16	13.17
South Africa	42	12.28	0.00	2.96	6.58	15.46	56.58	13.27
South Korea	434	4.81	0.00	0.00	1.32	2.63	76.32	12.80
Spain	126	20.61	0.00	2.63	14.47	36.84	81.58	20.79
Sweden	47	26.90	0.00	5.92	17.11	48.03	88.16	25.28
Switzerland	72	22.64	0.00	3.95	17.76	36.18	77.63	21.35
Taiwan - China	31	6.83	0.00	0.00	1.32	4.61	68.42	14.73
Turkey	12	6.14	0.00	1.32	2.63	11.18	23.68	7.41
UK	423	23.07	0.00	4.61	14.47	38.16	82.89	21.93
US	4,358	8.55	0.00	2.63	3.95	10.53	88.16	11.61
United Arab Emirates	32	8.10	0.00	1.32	2.63	5.92	50.00	12.35
Total	11,008	8.38	0.00	0.00	2.63	9.21	88.16	14.13

Online Appendix OA2: Sources of ESG Disclosure Management Indicators

Table OA2 presents the source types of ESG disclosure management indicators for the GPs in Panel A. The table categorizes the disclosed indicators by source type and ESG pillar while also reporting the total number and percentage of disclosures attributed to each source.

Source	Environ- mental	Social	Govern- ance	Total	% of total
Webpage Content	1,068	9,651	19,211	29,930	42.7%
IAPD	30	129	9,985	10,144	14.5%
PRI Report	1,015	1,573	6,106	8,694	12.4%
Sustainability Report	1,286	1,562	1,668	4,516	6.4%
ESG Report	1,164	1,623	1,682	4,469	6.4%
ESG Investment Policy	105	271	2,334	2,710	3.9%
Annual Report	329	494	572	1,395	2.0%
SFDR Disclosure	131	38	349	518	0.7%
Code of Conduct	2	52	357	411	0.6%
TCFD Report	278	5	49	332	0.5%
Investment Policy	9	37	274	320	0.5%
Privacy Policy	0	228	14	242	0.3%
Modern Slavery or Human Rights Policy	0	118	118	236	0.3%
DEI Policy	0	144	11	155	0.2%
Code of Business Ethics	1	12	98	111	0.2%
Other	1,261	1,671	2,998	5,930	8.5%
Total	6,679	17,608	45,826	70,113	
<i>% of total</i>	<i>9.5%</i>	<i>25.1%</i>	<i>65.4%</i>		

Online Appendix OA3: Fund Performance and ESG Disclosure – Non-linearity test

Table OA3 shows the coefficient estimates of regressing fund performance on $\ln(1+ESGDisclosure)$ and its squared term. The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. For each fund performance metric three regression models are estimated. The first column includes no GP & fund controls or fixed effects, the second column includes GP & fund controls, and the third column is the full models specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR	NetIRR	NetIRR	NetIRR	TVPI	TVPI	TVPI	TVPI	DPI	DPI	DPI	DPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\ln(1+ESGDisclosure)$	5.009*** (1.686)	3.322* (1.699)	2.132 (1.942)	2.132 (1.942)	0.046 (0.133)	0.070 (0.133)	-0.025 (0.160)	-0.029 (0.161)	0.237** (0.116)	0.036 (0.123)	-0.014 (0.110)	-0.035 (0.108)
$\ln(1+ESGDisclosure)^2$	-0.862*** (0.292)	-0.785*** (0.292)	-0.683* (0.356)	-0.683* (0.356)	-0.030 (0.022)	-0.034 (0.021)	-0.028 (0.028)	-0.026 (0.028)	-0.038* (0.020)	-0.019 (0.021)	-0.014 (0.020)	-0.008 (0.020)
GP & Fund Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
VintageYear and GPCountry FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
FundRegion and FundIndustry FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
R-squared	0.007	0.110	0.191	0.191	0.021	0.114	0.280	0.289	0.003	0.119	0.557	0.569

Online Appendix OA4: Fund Performance and ESG Disclosure Quartiles by Fund Strategy

Table OA4 shows the coefficient estimates of regressing fund performance on *ESGDisclosureQuartile* separately for the three main *FundStrategy* types (buyout, growth, venture capital). The dependent variables are the three fund performance metrics *NetIRR*, *TVPI*, and *DPI*, which are winsorized at the 1st and 99th percentile. *ESGDisclosureQuartile1* is the omitted benchmark category. All regression models use the full model specification including GP & fund controls as well as *VintageYear*, *GPCountry*, *FundRegion*, and *FundIndustry* fixed effects. The robust standard errors in parentheses are clustered at the GP-level. ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

	NetIRR Buyout (1)	NetIRR Growth (2)	NetIRR VC (3)	TVPI Buyout (4)	TVPI Growth (5)	TVPI VC (6)	DPI Buyout (7)	DPI Growth (8)	DPI VC (9)
BuyoutESGDisclosureQuartile2	-1.267 (1.038)			-0.151** (0.067)			-0.064 (0.057)		
BuyoutESGDisclosureQuartile3	-2.622** (1.172)			-0.225*** (0.076)			-0.052 (0.065)		
BuyoutESGDisclosureQuartile4	-5.459*** (1.467)			-0.403*** (0.099)			-0.210** (0.089)		
GrowthESGDisclosureQuartile2		2.396 (2.021)			-0.139 (0.159)			0.109 (0.144)	
GrowthESGDisclosureQuartile3		1.214 (2.417)			-0.006 (0.162)			-0.036 (0.146)	
GrowthESGDisclosureQuartile4		1.772 (2.751)			0.115 (0.226)			0.215 (0.160)	
VCESGDisclosureQuartile2			-1.683 (1.732)			-0.203 (0.156)			0.016 (0.139)
VCESGDisclosureQuartile3			-0.201 (2.313)			-0.181 (0.217)			-0.193 (0.161)
VCESGDisclosureQuartile4			-2.616 (2.051)			-0.406** (0.172)			-0.176 (0.137)
GP & Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VintageYear and GPCountry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FundRegion and FundIndustry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	770	227	397	770	227	397	770	227	397
R-squared	0.229	0.479	0.277	0.315	0.484	0.405	0.607	0.747	0.600