ESG Transparency of Private Equity and Debt Firms[*]

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Abstract

Institutional investors' exposure to private market funds exceeds 12 trillion US dollars. Despite this and contrary to public markets, little is known about the extent and determinants of ESG transparency in private markets. Using a novel dataset, we investigate ESG disclosures in the increasingly important private equity and debt markets. Consisting of 4150 private equity and private debt firms and capturing 82% of the global PE and PD funds raised over the past 10 years, our sample allows us to investigate 37 ESG disclosure indicators that are most relevant to the setting of private capital markets. We find an overall low and heterogeneous level of ESG disclosure. The median GP discloses only 8% of the available ESG indicators, implying that GPs are significantly less transparent than public firms. Larger, listed, older, and more recently fund-raising GPs, as well as GPs headquartered in Developed Europe are more transparent. Analyzing firm-, portfolio- and asset level ESG transparency, we provide evidence that portfolio-level ESG characteristics as well as a GP's investor base are each significantly associated with GPs' ESG disclosures.

1. Introduction

This study examines private equity ("PE") and private debt ("PD") firms' Environmental, Social, and Governance ("ESG") disclosures, which are increasingly at the forefront of investor, regulatory, and societal attention.[1] Over 3,500 asset managers representing more than 100 trillion US dollar in public and private market assets under management have signed the United Nations Principles for Responsible Investment ("UNPRI"), which requires investors to consider ESG factors in their investment decisions. Similarly, several recent regulatory initiatives, such as the European Commission's Sustainable Finance Disclosure Regulation and the US SEC's proposed amendments to ESG disclosure rules for registered funds and investment advisers, address enhanced disclosures with respect to ESG risks and strategies. Despite the strong growth of PE and PD markets (McKinsey, 2022) and their suitability to finance firms that pursue long-term strategies (Zimmerman, 2015), prior literature has devoted little attention to PE and PD firms' ESG disclosures. These firms manage some 7.2 and 1.3 trillion dollars in PE and PD respectively, together representing approximately two thirds of the entire private market assets under management.[2]

Using novel Preqin data consisting of 37 ESG disclosure indicators that are specifically tailored to private capital markets, we contribute to a burgeoning literature on voluntary ESG disclosure by investigating the extent and determinants of PE and PD firms' ESG transparency (for a review, see Christensen, Hail, & Leuz, 2021). Extant literature predominantly examines public firms and establishes that firm size (Hahn & Kühnen, 2013), institutional ownership (Dhaliwal, Li, Tsang, & Yang, 2011), firms' industry membership and CSR performance (Cho & Patten, 2007; Grougiou, Dedoulis, & Leventis, 2016), and the threat of future regulation (Reid & Toffel, 2009) are each associated with firms' ESG disclosures. In addition, several studies show that ESG disclosures are related to fund flows (Hartzmark & Sussmann, 2019; Amel-Zadeh, Lustermans, & Pieterse-Bloem, 2022), and that ESG disclosures and affiliations may be used to

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[1] PE and PD firms are often referred to as "general partners". This terminology reflects that PE and PD funds are partnerships, where the PE or PD firm acts as the general partner. We use the two terms interchangeably throughout the paper. Similarly, we use "ESG" and "CSR" interchangeably.

[2] The $8.5 trillion figure represents the sum of the Net Asset Value of all existing PE and PD funds and the sum of all committed but uncalled capital, called dry powder, according to Preqin Pro as of March 2022. This compares to total private market AuM, which includes asset classes such as real estate and natural resources, in the amount of $12.73 trillion. In addition, Preqin estimates that PE and PD firms are set to jointly manage over $10 trillion by 2025 (Joyce, 2020; Chauhan, 2020).

legitimize (i.e. "greenwash") business operations (Cho & Patten, 2007; Lyon & Maxwell, 2011; Kim & Yoon, 2022; Reitmaier, Schultze, & Vollmer, 2022).

It is, however, not evident that the determinants of ESG disclosures obtained in public capital market settings are generalizable to the private market setting. While PE and PD firms (general partners, "GPs") face similar direct and indirect disclosure costs as managers of public firms – consisting of generating costly reports and the making public of proprietary information – the benefits of private market ESG disclosures are less evident. Investors in PE and PD funds (limited partners, "LPs") are typically sophisticated institutional investors that contract privately with the GP and have recurring investment relationships, implying that GPs can utilize private disclosure and communication channels. In addition, GPs may find it costly to obtain ESG information from their typically private, and sometimes early-stage, investee companies. More generally, private capital markets are much less regulated and more opaque than public markets (Zimmerman, 2015). It is therefore unclear whether GPs' perceived benefits of ESG disclosure outweigh their perceived costs of disclosure.

We posit that at least some GPs have incentives to disclose ESG information and that such incentives primarily stem from three sources. First, we argue that GPs can reduce LPs' screening costs regarding the ESG performance of PE and PD funds by signaling ESG commitments with voluntary ESG disclosure. This may help to attract capital (Hartzmark & Sussmann, 2019; Amel-Zadeh, 2022). Second, academics and politicians alike have blamed PE for being too opaque, with some suggesting that PE takes private carbon-intensive assets to escape the scrutiny that listed firms are subject to (Zingales, 2009; Jenkins, 2021). GPs may thus attempt to mitigate such criticism by voluntarily providing ESG disclosures. Third, recent ESG-related regulatory initiatives partly mandate, and may further prompt, GPs to disclose ESG information (Reid & Toffel, 2009; Suijs & Wielhouwer, 2019). While these arguments suggest that at least some GPs may find ESG disclosures sufficiently beneficial, the extent to which GPs actually provide ESG disclosures, and which factors are most explanatory of GPs' disclosure decisions, remain empirical questions that we address in this study.

We collect data from Preqin, the leading alternative asset data provider whose data is widely used in prior literature (e.g. Hochberg & Rauh; 2013; Harris, Jenkinson, & Kaplan, 2014;

Barber, Morse, & Yasuda, 2021; Böni & Manigart, 2022).[3] The ESG transparency data consists of 37 disclosure indicators, each of which is classified as relating most closely to the E-, S-, or G-pillar, and as relating to the "GP", "Portfolio", or "Asset" reporting-level. The data thus allow for a comprehensive analysis of both the extent and the type of ESG disclosures GPs provide. We complement the ESG transparency data with data on GP and LP characteristics. Moreover, we account for a GP's portfolio companies' ESG risk exposures and impact potential. This allows us to run a series of cross-sectional tests and to investigate the determinants of ESG transparency. Our final sample consists of 4150 GPs across the world, which together represent 82% of global PE and PD funds raised over the past 10 years. Our sample thus includes almost all economically meaningful GPs and our results are largely representative of the full universe of PE and PD firms.

Our first result is that GPs' ESG transparency is low. The median GP discloses only 8% of the 37 available disclosure indicators. Moreover, overall transparency is driven by and highest for disclosures relating to the G-pillar, while transparency is zero, on average, with respect to the E- and S-pillars. Only those GPs in the 90th percentile of the E-pillar and those in the 75th percentile onwards of the S-pillar disclose any information. Turning to GP-, portfolio and asset-level transparency, the median GP discloses information at the GP reporting-level only, while disclosures at the portfolio- and asset-level are missing, implying that the average PE or PD firm's disclosures relating to portfolio-company GHG emissions, climate change, environmental impact, as well as to ESG-related engagement processes and ESG KPIs for portfolio companies are very sparse. This descriptive analysis is informative of the transparency levels of the *average* GP. Private markets are highly concentrated, however. Empirically, just 107 GPs, or 2.6% of all GPs, together account for over 50% of the total funds raised in our sample. We therefore additionally investigate the transparency distributions for these large GPs only. The median large GP discloses a much higher 51% of the 37 available indicators, while large GPs' ESG transparency is similarly decreasing for the GP (62.5%), portfolio (50%), and asset (33%) reporting levels. These results suggest that, while large GPs disclose reasonable ESG information, the median GP is quite opaque.

In order to establish how the propensity of GPs' ESG disclosure compares to that of public firms, we next map 7 of the Preqin ESG disclosure indicators that are sufficiently comparable to the Refinitiv EIKON ESG database. We find that GPs are much less likely to disclose sustainability

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[3] We benchmark our continuous proxy for ESG transparency with a GP's PRI signatory status. We refer the reader to section 3 for further details on Preqin's ESG data, its quality, and the sources of GPs' ESG disclosures.

reports, firm-level carbon emissions, and each of human rights, diversity, whistleblower, and privacy policies. Moreover, they are further less likely to report on the use of ISO standards. These results hold even after controlling for firm size and firms' country of headquarters in regression models that consider the average disclosure propensity for the 7 indicators. These results further continue to hold even when comparing our sample GPs with Refinitiv financial firms only, or when limiting our GP comparison sample to listed GPs only. Economically speaking, the average sample GP is 39.5% less transparent than the average public firm, and these results attenuate to 29.5% when using Refinitiv financial firms as the benchmark group, and to 18% when solely including the subset of sample GPs that is listed. Taken together, these results establish that, in the context of the 7 ESG disclosure indicators considered, GPs are more opaque than the full Refinitiv (financial) universe, and that even those GPs that face additional reporting requirements associated with their listed status are less transparent than listed firms in the Refinitiv universe.

We next investigate cross-sectional variation in GPs' ESG transparency. Building upon prior literature that primarily studies public firms, we construct four groups of determinants of GPs' ESG transparency. First, we consider the relation between GPs' portfolio-level ESG performance and ESG disclosures. GPs with comparatively high portfolio-level ESG performance may have incentives to signal this good ESG performance to investors and non-investor stakeholders, while prior literature suggests that those with *worse* ESG performance may attempt to use ESG disclosure to legitimize their operations (Cho & Patten, 2007; Lyon & Maxwell, 2011; Grougiou et al., 2016). We therefore consider two distinct proxies of GPs' portfolio-level ESG performance: portfolio companies' potential for impact and the number of industry-based material SASB ESG risks that GPs face in their portfolio company holdings. In our full models that consider a host of determinants of GPs' ESG disclosures, we find that both the extent of material SASB ESG risks as well as the impact potentials of portfolio companies are each significantly positively related to GPs' ESG transparency. These findings suggest that GPs increase transparency when facing many material ESG risks, and simultaneously suggest that GPs may signal positive ESG characteristics of their investment holdings with increased disclosure.

Second, based on the notion that legal and social norms and, in extension, E&S preferences and regulations differ across geographic regions, we consider GPs' region of headquarters (Liang & Renneboog, 2017; Dyck, Lins, Roth, & Wagner, 2019; Barber et al., 2021; Fiechter, Hitz, & Lehmann, 2022). We find that GPs located in Developed Europe are, on average, the most

transparent (30.9%), followed by GPs headquartered in Emerging Europe (19.6%), and North America (18.3%). Those headquartered in Emerging Asia-Pacific, and particularly those located in China, are the least transparent, with an average ESG transparency of just 5.8%. Together, these results are consistent with heterogeneity in social and environmental norms and ESG disclosure regulation across regions transferring over to GPs' ESG disclosure decisions.

Third, we find that older, larger, more recently fund-raising, and listed GPs are significantly more transparent, in line with prior literature showing that several firm characteristics, and particularly firm size and the associated increased stakeholder scrutiny, are determinants of ESG disclosure (Hahn & Kühnen, 2013; Christensen et al., 2021). Moreover, we account for the fact that GPs' investment strategies encompass the allocation of capital to different types of investee companies, suggesting differing costs and benefits of ESG information acquisition. VCs invest in early-stage companies, growth firms in comparatively older firms with a proven business strategy, and buyout firms typically invest in mature companies. We posit that the early-stage nature of VC investee companies may hinder, and reduce the relevance of, the collection of ESG information. In line with this notion, we find that buyout firms are comparatively the most transparent and VC firms the least, with the former disclosing an average of 29% of the available indicators, which compares to just 10% for the average VC firm, and that such findings continue to hold in our full regression models. Similarly, PD firms differ from PE firms in the sense that PD fund managers typically do not have any voting power regarding the operations and disclosure decisions of their investee companies. In our full models, PD firms are significantly less transparent than buyout firms, although to a much lesser extent than those following a VC investment strategy.

Fourth, we consider how a GP's investor base is related to ESG transparency. We follow Barber et al. (2021) and classify LPs in 9 types, reflecting the type of beneficiaries each LP represents. In addition, we consider the average ESG transparency and size of a GPs' investor base. We find that the average ESG transparency of LPs is significantly positively associated with a GPs' ESG transparency. Moreover, when taking the percentage of institutional asset managers with a diverse investor base as the reference group, we find that the percentage of pension funds, foundations, development organizations, and wealth managers investing in a GP is each significantly positively associated with GPs' ESG transparency. These findings are in line with the comparatively higher non-pecuniary preferences of pension funds, foundations, and development organizations documented in Barber et al. (2021), and with prior studies establishing that

institutional investors may drive firms' E&S performance (Dyck et al., 2019). Alternatively, these findings may be indicative of GPs using ESG disclosures to attract more ESG-oriented investors (Serafeim, 2015).

Economically speaking, in our full regression models, we find that a one standard deviation increase in portfolio-level ESG risks and impact potentials are each associated with an approximately 5% increase in ESG transparency.[4] GPs from Developed Europe are a striking 51% more transparent than their North American counterparts, while those headquartered in Emerging Asia-Pacific are 61% *less* transparent, on average. Moreover, a one standard deviation increase in the GPs' average fund age is associated with a 6% decrease in ESG transparency, while a one standard deviation increase in the average ESG transparency of a GPs' investors is associated with an approximately 13% increase in GPs' ESG disclosures. In summary, we find that GPs' portfolio-level ESG characteristics, region of headquarters, investment strategy, and LP characteristics, are each statistically and economically significantly associated with GPs' ESG disclosures.

To further establish the relevance of each category of predictors of ESG transparency, we undertake an Owen-Shapley R-squared decomposition (Huettner & Sunder, 2012). The Owen-Shapley approach allows us to investigate how much each variable, as well as each determinants group, incrementally contributes to our overall full-model explanatory power of 52.8%. We find that the group of GP variables, comprising of GP investment strategies, size, (average fund) age, and listed status, is the most explanatory of ESG transparency, accounting for a full 35% of the explained variation in our dependent variable. This is followed by GPs' region of headquarters (33%), and the group of LP variables (29%), comprising the type mix, average size, and average transparency of GPs' investors. In contrast, the portfolio-level ESG risk and impact potential variables account for just over 2% of the explained variation. While the statistical significances of these portfolio-level ESG risks variables are not subsumed by our other groups of variables, these Owen-Shapley decompositions nevertheless suggest that portfolio-level ESG factors are relatively unimportant in contrast to more fundamental GP variables, a GPs' investor base, and its regulatory environment.

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[4] These economic significances represent changes in our *ESGTransparency* dependent variable. For example, for ESG risk, at the mean *ESGTransparency* of 17.35%, a 5% increase implies a transparency level of 17.35 * 1.05 ≈ 18.22%. Further details on economic significance calculations are provided in Section 4.3.

In our last set of analyses, we estimate our full model regressions for each of the GP-, portfolio-, and asset-level disclosures, and for disclosures relating to each of the E-, S-, and G-pillars. For each reporting level and ESG-pillar, transparency is increasing for larger, older, listed, and more recently fund-raising GPs, as well as for those GPs that have investors with higher average levels of ESG transparency. Similarly, across each reporting level and each ESG pillar, transparency is significantly lower for venture capitalists in comparison to buyout firms. With the exception of GPs from Developed Europe, which are always most transparent, North American GPs are those most transparent on the GP reporting level. Most notably, however, these results attenuate for disclosures relating to the portfolio-level, and fully reverse for the asset-level, with GPs from each region, except for Central & South America, being significantly more transparent than North American GPs on those disclosures relating to individual portfolio companies. Similarly, and again with the exception of GPs from Developed Europe, North American GPs are those most transparent on the G-pillar, but these results attenuate and partly reverse for the S- and E-pillars, respectively. Together, in comparison to GPs headquartered in other regions, these findings suggest that North American GPs fail to provide specific environmental disclosures, and similarly fail to follow through on the more specific, more costly to generate, portfolio- and asset-level disclosures, which primarily consists of disclosures relating to ESG or impact investment strategies, and to engagement processes or ESG KPIs for portfolio companies.

We make several contributions to the literature. First, while there is a burgeoning literature on the determinants of ESG disclosure in public markets, prior work on ESG in private markets is sparse (Dai, 2022). Some notable exceptions are survey and experimental work studying the factors associated with PE responsible investing and GPs' reactions to ESG disclosure (Crifo & Forget, 2013; Crifo, Forget, & Teyssier, 2015), and several studies focusing on private market investors' willingness to pay for impact investments (Barber, et al., 2021; Heeb, Kölbel, Paetzold, & Zeisberger, 2022). Our findings that GP size, listed status, fund-raising activities, region of headquarters, as well as portfolio-level ESG characteristics are each statistically and economically significant determinants of GPs' ESG transparency suggest that some public equity market results regarding ESG disclosure determinants generalize to private capital markets. However, the average private market ESG transparency is much lower than that of public markets, and our findings that LP characteristics are economically and statistically important determinants of GPs' disclosure

provide further insights on how investor demand for ESG disclosure can be a mechanism to increase transparency in private capital markets (e.g. Ryder, 2021).

Second, this study closely relates to several regulatory initiatives and societal debates on PE transparency. The Sustainable Finance Disclosure Regulation (SFDR), gradually implemented as of March 2021, as well as several other proposed regulations such as the European Commission's' CSRD or the SEC's proposed amendments to ESG disclosure rules for registered funds and investment advisers affect private market asset managers. Our findings that PE and PD ESG transparency is comparatively low, but not completely absent and with substantial variation, suggests that there is room for further ESG disclosure, but simultaneously provides nuance to claims surrounding the opaqueness of private capital markets.

Our paper relates most closely to a contemporaneous working paper on PE firm ESG disclosures (Abraham, Olbert, & Vasvari, 2022). These authors corroborate our findings that GPs headquartered in regions where ESG disclosure regulation is more prevalent, as well as listed and fund-raising GPs, are more transparent. Our paper differs from this concurrent working paper in several respects. First, Abraham et al. (2022) focus on private equity firms only, while we apply a broader private market view and include the rapidly growing private debt asset class in our analyses. Second, Abraham et al. (2022) focus on website disclosures and use textual analysis based solely on a dictionary sourced from the UN PRI glossary. We instead rely on a new dataset, Preqin's ESG transparency disclosure indicators, that represents the most relevant indicators sourced from several ESG ratings providers and ESG frameworks, capturing disclosures in sustainability reports, PRI surveys, and other filings, in addition to website disclosures. Our assessment of ESG disclosures thus relates to the most widely used and accepted ESG frameworks. Third, we additionally consider LPs' ESG transparency and distinguish between different types of investors shown to have varying levels of non-pecuniary preferences and find these to be important determinants of GPs' disclosure decisions. Lastly, we disaggregate disclosures based on the reporting level that each disclosure relates to, i.e. the asset-, portfolio-, or GP-level. These reporting level results allow us to draw a more granular picture and to reach conclusions related to the cost and specificity of ESG disclosures. We find substantial differences across reporting levels which provides further insights in the cost-benefit tradeoffs that GPs face when considering public ESG disclosure.

This article proceeds as follows: Section 2 provides background information on PE and PD firms and summarizes related literature. Section 3 describes the data and sample selection. Section 4 presents empirical results. Section 5 presents concluding remarks and discusses practical implications.

2. Background and Related Literature

2.1 Private Equity and Debt Funds

Private equity ("PE") and private debt ("PD") funds are structured as partnerships.[5] At the funds' inception, limited partners ("LPs"), typically sophisticated institutional investors such as pension funds, financial institutions, and family offices, commit to contribute capital. The year a fund makes its first capital calls is referred to as the vintage year, after which the general partner ("GP") builds a portfolio primarily consisting of investments in private companies. PE and PD funds are largely illiquid with an investment horizon of 8 to 12 years.[6] GPs act as stewards of LPs and further act as the principal of investee companies' management, giving rise to agency conflicts. Agency conflicts between LPs and investee companies on the one side are mitigated through close monitoring in combination with strong incentive alignment between GPs and investee companies' management, whereas contractual agreements between LPs and GPs are used to avoid agency conflicts on the other side (Jensen, 1989; Zimmerman, 2015). GPs receive an annual management fee and, once the GP exits the funds' investments and provided a minimum preferred return has been achieved, a performance fee. Our analyses focus on private equity and debt *firm* ESG transparency. These PE or PD firms typically manage several private equity and/or private debt *funds*.

The three dominant PE firm strategies are venture capital ("VC"), growth and buyout. VC firms typically finance early-stage start-ups, growth firms provide funding to comparatively more mature companies with a proven business model, and buyout firms typically use large amounts of leverage to assume majority interests in public companies (i.e. leveraged buyouts) or private companies, while relying on financial, governance, and/or operational engineering to generate returns (Kaplan & Strömberg, 2009). Similarly, PD firms follow a variety of debt strategies such

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[5] We refer to Kaplan and Strömberg (2009) and Zimmerman (2015) for more detailed descriptions of private equity firms and the increasing importance of private capital markets for developed economies. In this vein, we refer to Block et al. (2022), and Böni & Manigart (2022), who provide information on private debt firms.

[6] Some private equity and debt funds are also active in secondary markets, which are more liquid.

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as direct, distressed, and special situations lending and play an essential role for parts of the economy where bank lending is not feasible, either because of the risk characteristics or complexity of investment opportunities, or because of the stringent regulatory and disclosure requirements associated with bank financing (Block et al., 2022; Böni & Manigart, 2022). Finally, some GPs do not strictly follow a dominant investment strategy and rely on balanced or hybrid strategies, investing in diverse types of companies using several investment strategies.

2.2   PE and PD Firm ESG Disclosures

Managers provide voluntary disclosures to mitigate information asymmetries. Disclosure theory suggests that managers will voluntarily disclose only if managers' perceived benefits of disclosing exceed the direct and indirect costs of disclosure – i.e. if disclosure is sufficiently favorable (Beyer, Cohen, Lys, & Walther, 2010). The main costs of disclosures consist of the direct costs to prepare and disseminate disclosure and of the indirect costs of revealing proprietary information. These disclosure costs equally apply to both public market settings and to GPs' disclosure decisions – GPs face both indirect and direct costs of generating (ESG) disclosures. The benefits of disclosure, however, are less evident in private capital markets given that GPs typically contract privately with LPs and can utilize private disclosure and communication channels. However, we posit that GPs have various incentives to provide publicly available ESG disclosures.

First, a GP may aim to reduce LPs' screening costs related to assessing a GP's ESG performance. As several types of institutional investors have ESG preferences (Barber et al., 2021), which affect portfolio decisions and asset prices (Zerbib, 2022), ESG disclosure may help GPs to attract capital, i.e. accumulate more assets under management, and harvest greater fee revenues. Recent research provides support for this conjecture (Hartzmark & Sussman, 2019; Amel-Zadeh et al., 2021; Liang, Sun, & Teo, 2022).

Second, operating in a largely opaque and unregulated industry, GPs face increasing demands for greater transparency, independent of LPs' requirements. The demand for more transparency in private markets is widespread and has been articulated by politicians as well as by academics. [7] Zingales (2009), for example, argues that the large regulatory gap between public and

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[7] GPs are often blamed for opacity and accountability issues. US Senator Elizabeth Warren, for example, strives to reform the PE industry, pushes for more transparency, and has been sending out letters to PE firms demanding explanations for the deterioration of the US prison system, with the US congress further blaming PE for surging

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private equity markets may reduce the perceived accountability and levels of public trust in the corporate sector. GPs may respond to stakeholder demands for more transparency by providing ESG information on a voluntary basis. This second conjecture is in line with research providing evidence that larger, more highly scrutinized firms operating in controversial industries have higher levels of ESG disclosure (Cho & Patten, 2007; Hahn & Kühnen, 2013; Grougiou et al., 2016; Christensen et al., 2021).

Third, it appears that voluntary disclosures shall soon be replaced by mandatory disclosures. GPs are subject to increased regulatory ESG pressures embodied by extensive new regulations such as, for example, the European Commissions' SFDR and CSRD. The SFDR requires financial market participants to disclose principal adverse impacts of their investment portfolios, as well as to substantiate "green" claims, while the CSRD introduces substantial CSR disclosure requirements for both public and private firms. The introduction of these regulations in the EU, as well as the threat of future ESG disclosure regulation more broadly, may prompt GPs to increase ESG disclosure. This conjecture is supported by Suijs and Wielhouwer (2019), who model an unregulated financial market in which a threat of regulation induces firms to voluntarily disclose more, and by Reid and Toffel (2009), who show that political pressures increase the propensity of firms making climate-related disclosures.

In summary, we suggest that GPs have various incentives to voluntarily provide ESG disclosures, and that the perceived benefits of disclosing ESG information may exceed the direct and indirect costs of such disclosures. Not only do voluntary ESG disclosures appear to be sufficiently favorable for at least some GPs, ESG disclosure may soon become mandatory. Based on prior literature, we next consider four groups of potential determinants of GP ESG disclosure.

2.3   ESG Disclosure Determinants

We first consider GPs' portfolio-level ESG characteristics. While firms with better ESG performance may have an incentive to signal their good ESG performance, prior literature on the relation between ESG disclosure and ESG performance is mixed. Several studies suggest that firms

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health care costs, allegedly caused by extensive leverage and the need to generate "outsized" returns (Flood, 2019; Appelbaum & Batt, 2019). While many more anecdotes can be found (e.g. in Europe, the Italian government threatened to review thousands of private equity state contracts after a bridge, which was partly owned by the Benetton family, collapsed, killing 43 people (Roberts, 2018), not all scrutiny is valid. Bernstein, Lerner, Sorensen, and Strömberg (2017) find that industries in which PE firms are active grow more rapidly, suggesting that private equity involvement, on average, has positive real impacts on productivity and employment

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in more controversial industries and with poor ESG performance increase ESG disclosure to legitimize their operations (Cho & Patten, 2007; Lyon & Maxwell, 2011; Grougiou et al., 2016). Moreover, recent studies suggest that signatories to the UNPRI do not "walk the talk" (Gibson et al., 2022; Kim & Yoon, 2022; Liang et al., 2022). Taken together, this literature suggests that the relation between firms' ESG performance and ESG disclosure may be negative (i.e. those with worse ESG performance tend to disclose more). We expect such findings to generalize to the setting of private capital markets and investigate the relations between GPs' portfolio-level ESG risks and ESG disclosure.

Second, we consider GPs' region of headquarters. Environmental and social norms vary across regions and drive firms' E&S scores (Dyck et al., 2019). In addition, substantial heterogeneity in ESG disclosure regulation across regulatory regimes may affect ESG disclosures. Arguably, the European Unions' ambitions regarding ESG disclosure regulation are most far-reaching. The SFDR requires all financial market participants to report on principal adverse impacts and on alignment with the EU's taxonomy, while the US SEC is only recently catching up with its 'review of ESG investing' (SEC, 2021) and its proposed amendments to disclosures by investment companies and advisers about ESG investment practices (SEC, 2022). Given the comparatively higher E&S norms and more extensive ESG disclosure regulation in Europe, we expect that GPs' ESG transparency is highest for those GPs headquartered in the European regions.

Third, we consider GPs' characteristics and investment strategy. Prior literature shows that several firm characteristics, most notably firm size, are determinants of ESG disclosure (Hahn & Kühnen, 2013; Christensen et al., 2021). More specific to the setting of private capital markets, each of the major PE investment strategies constitutes investments in portfolio companies that are in very different stages of their life cycles. VCs typically invest in innovative start-ups, growth firms invest in investee companies that have a somewhat established business model, while buyout firms typically invest in mature companies. Moreover, ESG disclosures in public equity markets are different from those of public debt markets, and this may generalize to private markets.[8] PD GPs have no formal rights to affect investee companies' ESG policies, nor any voting power

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[8] For example, ShareAction, a UK-based responsible investment charity, found that 84 per cent of asset managers have no public policy against purchasing sovereign bonds from countries such as China, which are under international sanction for human rights abuses. Also see the *Financial Times* "Bonds are an ESG blind spot in investing" (Plender, 2021) for more examples how ESG investing is primarily an equity market phenomenon.

during, for example, general assemblies. PD GPs' portfolios may therefore differ in terms of both ESG risk and disclosure in comparison to their PE counterparts. Taken together, the costs and relevance of obtaining ESG information from portfolio companies may vary across PE and PD and across the life cycles of investee companies. VCs may find it comparatively harder to obtain ESG information from their very early-stage investee companies than, for example, buyout firms investing in mature companies. We thus expect substantial differences in ESG transparency levels across GPs' main strategies.

Finally, we posit that LPs influence GPs' disclosure practices. Several types of institutional investors, such as public pension funds and development organizations, have non-pecuniary preferences and are willing to pay for impact (Barber et al., 2019). Institutional investors drive firms' E&S performance (Dyck et al., 2019), and overlap in institutional investors drives voluntary disclosure practices more generally (Jung, 2013). From the perspective of a GP, ESG disclosure may be helpful to attract LPs and raise capital (Serafeim, 2015, Hartzmark & Sussman, 2019; Amel-Zadeh et al., 2021). In summary, these literature streams suggest that LPs – i.e. institutional investors – impact disclosure, while ESG disclosure may simultaneously help to attract LPs. We thus include LP variables as our fourth and final group of explanatory variables.

The above discussion primarily relies on findings in the public market setting. Whether, and to what extent, such findings generalize to the setting of PE and PD firms' ESG disclosure remains an empirical question that we address in this paper.

3. Data, Variable Measurement, and Descriptive Statistics

3.1 Data

We obtain all data from Preqin Pro. Preqin is the leading alternative assets data provider and its data is extensively used in prior private equity and debt literature (e.g. Hochberg & Rauh, 2013; Harris, et al., 2014; Barber et al., 2021; Böni & Manigart, 2022). Preqin is the first major alternative assets data provider to introduce PE and PD firm ESG disclosure data. We collect ESG disclosure, ESG risk, and impact potential data for all GPs with data available in September 2022. Additional GP variables, such as GP strategy, region, funds raised and listed status, are obtained from Preqin's Fund Manager tab and a list of investors for each GP is obtained from each GP's "Investor" page. LP variables, such as LP size, type, and region, are obtained from Preqin Pro's Investor tab, and data on each LP's ESG transparency are obtained from LPs' "ESG" pages.

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Table 1 presents the sample selection process. To construct our primary dataset, we start with the full Preqin universe consisting of 35,216 GPs as of September 2022. We drop 914 GPs for which ESG transparency data is unavailable and further require availability of the *ESGRisk* and *ImpactPotential* variables, all GP and LP variables, and GP headquarters region. This results in a final sample of 4150 GPs for which all variables are available. Together, these GPs represent over USD 6.7 trillion in total funds raised in private equity and debt over the past 10 years, representing 82% of the $8.2 trillion in total funds raised in the full Preqin universe. This suggests that our sample represents the far majority of PE and PD assets under management and includes almost all economically meaningful PE and PD firms. As such, we provide comprehensive insights on ESG transparency in private capital markets.

Our dependent variables are variants of the percentage of ESG indicators disclosed. Preqin provides disclosure data on 37 ESG indicators and groups these by the E-, S-, and G-pillar, as well as by the GP-, portfolio-, or asset-level, together called the "governance levels". These 37 indicators represent the most relevant disclosure indicators for private capital markets from a set of existing ESG frameworks and ratings providers (Preqin, 2022). Source links are provided for each disclosure, substantially limiting the potential for false positives.[9] Appendix 1 presents an overview of the 37 ESG disclosure indicators, the propensity of disclosure for each disclosure indicator, the governance levels and ESG pillars each disclosure indicator relates to, and the source of each indicator. 18 out of the 37 disclosure indicators are sourced from ratings providers, a further 11 are sourced from the UNPRI reporting framework, 5 from the ILPA ESG framework, 2 from SASB, and 1 from TCFD. 4 indicators relate to the E-pillar, 8 to the S-pillar, 25 to the G-pillar, and 16, 12, and 9 indicators respectively relate to the GP-level, portfolio-level, and asset-level. The most commonly disclosed indicators relate to the GP's leadership structure and board of directors (87%), the ownership structure of the GP (50%), privacy policies (41%), and mentions of ESG considerations in operations (34%).

3.2 Variable Measurement

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[9] We check each source link that is not an URL and exclude those that do not link to any disclosures. We further exclude private documentation of disclosure and only count an indicator as disclosed if disclosure is publicly available.

In order to explain cross-sectional variation in GPs' transparency levels, we construct four groups of determinants of ESG transparency. First, we consider ESG variables capturing portfolio-level ESG risks (*ESGRisk)* and portfolio company impact potentials (*ImpactPotential). ESGRisk* is based on the SASB materiality matrix, which consists of 26 industry-specific material sustainability issues. Based on the industries in which portfolio companies are active, Preqin indicates for each active company in a GP's portfolio whether a SASB issue is material. The material SASB issues are subsequently aggregated over all portfolio companies, resulting in an industry-based heat map for each GP reflecting the extent of material ESG issues in a GP's portfolio. We count the total number of SASB issues in each GP's portfolio and scale the resulting figure by the number of theoretically possible SASB issues. We multiply the result by 100 to arrive at a percentage risk score, where a score of 0 reflects the theoretically lowest risk and a score of 100 the theoretically highest risk.[10] Portfolio companies' impact potentials (*ImpactPotential)* is based on the inclusion of portfolio companies in impact funds or industries with high impact potentials, such as renewable energies, micro-finance, or education, as well as on textual analysis of portfolio companies' business descriptions. *ImpactPotential* is defined as the percentage of portfolio companies with likely or very likely impact potentials.

Second, we consider GPs' region of headquarters. We follow Barber et al. (2021) in distinguishing between developed and developing regions. We categorize GPs in 7 region groups based on the GP's country of headquarters; North America, Developed Europe, Emerging Europe, Developed Asia-Pacific, Emerging Asia-Pacific, Central & South America, and Africa & Middle East.[11] Our region classifications thus account for the differing levels of economic development within the Asia-Pacific and European regions.

Third, we consider GP characteristics and strategy. We measure GP age (*Age*) as the number of years since inception of the PE or PD firm, funds raised (*lnFundsRaised*) as the log-transformed total funds raised for both PE and PD funds in the last 10 years, the GP's average fund

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[10] For example, KKR, a well-known US private equity firm, had 334 active portfolio companies at the end of March 2021. KKR's portfolio companies had, in total, 2765 material SASB ESG issues, or slightly over 8 per portfolio company, on average. Since there are 26 sustainability issues in the SASB materiality matrix, the theoretically possible number of material ESG issues is 334*26 = 8684. We calculate ESGRisk as *realized material SASB ESG issues / theoretically possible number of material SASB ESG issues* * 100. KKR's ESGRisk is thus 2765/8684*100 ≈ 31.84.

[11] We consider all countries in the FTSE Developed Europe index as part of Developed Europe and all other European countries as part of Emerging Europe. We further consider Japan, Hong Kong, Singapore, South Korea, New Zealand, and Australia as part of Developed Asia-Pacific and all other Asian countries as part of Emerging Asia-Pacific.

age (*MeanVintage)* as 2022 minus the average vintage year of a GP's funds, the listed status of a GP (*Listed)* as a dummy variable taking the value of one if a GP is listed and zero otherwise, and women or minority ownership (*WomenMinority)* as a dummy variable taking the value of one if Preqin identified women or minority owners. We further include indicator variables for GPs' strategies, classifying GPs as buyout firms (*Buyout),* growth firms (*Growth)*, and VC firms (*VC)* if a firms' main strategies are buyout, growth, or VC, respectively. We further classify GPs as private debt (*PD)* firms if a GP's total funds raised in private debt exceeds total funds raised in private equity. Finally, we include a miscellaneous category (*OtherStrategies)*, and include all GPs that do not fall within one of the previously defined strategy bins. This miscellaneous category primarily includes GPs with balanced (i.e. mixed) strategies.

Fourth, we consider limited partner characteristics. We measure the average size of a GP's investors (*lnAverageLPSize)* as the log-transformed average of LP assets under management, the average ESG transparency of a GP's investor base (*AverageLPESGTrans)* as the average percentage of ESG indicators disclosed by each GPs' LPs, and the percentage of LPs headquartered in the GP's headquarters region (*HomeBias)* using the 7 region classifications.[12] We further calculate the percentage of investors that belongs to each of nine LP type groups. Specifically, we follow Barber et al. (2021) and define LPs as corporate or government (*PercCorpGovPortfolios)* if the LP is a corporate investor, government agency, sovereign wealth fund, or state-owned enterprise, as endowments (*PercEndowment)* if a LP is an endowment fund, as financial institutions (*PercFinancialInst)* if a LP is a bank or insurance company, as foundations (*PercFoundation)* if a LP is a non-profit foundation, as private pensions (*PercPrivatePension)* if a LP is a private pension fund or superannuation scheme, as public pensions (*PercPublicPension)* if a LP is a public pension fund, and as wealth managers (*PercWealthMngr)* if a LP is a family office or wealth manager. Finally, we manually classify LPs as development organizations (*PercDevelopmentOrg)* based on LP background descriptions and affiliations with development associations and include a miscellaneous category (*PercInstitAssetMngr)* if a LP represents a diverse constituency group. All variables are defined in further detail in the variable definitions appendix and all continuous explanatory variables are winsorized at the 1st and 99th percentiles.

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[12] LP ESG transparency is based on a subset of the 37 GP disclosure indicators, consisting of 12 disclosure indicators that are most relevant for LPs.

3.3 Descriptive Statistics

Table 2 presents descriptive statistics for our 4150 sample GPs. **Panel A** describes these GPs: the average (median) GP has been established for 16 (13) years (*Age),* raised over $1.3 ($0.28) billion over the past 10 years (*FundsRaised)*, manages funds that were established, on average, 7 (6) years ago (*MeanVintage*), is a stock exchange listed company in only 2% of observed cases (*Listed*) and rarely, i.e. in approximately 7% of observed cases, owned by women or minorities (*WomenMinority*).[13] Fifty-two percent of our sample GPs are venture capitalists (*VC),* 22% are buyout firms (*Buyout)*, 14% follow a growth equity investment strategy (*Growth*), 8% are private debt firms (*PD),* and 4% follow a miscellaneous strategy (*OtherStrategies)*.[14]

We turn to our LP variables in **Panel B**. The average GPs' investor type mix consists for 20.5% of institutional asset managers with a diffuse investor base (*PercInstitAssetMngrs)* followed by corporations or governmental entities (*PercCorpGovPortfolios)*, financial institutions (*PercFinancialInst),* and public pension funds (*PercPublicPensions)* respectively representing 20.0%, 16.1%, and 12.7% of the average GPs' investor mix. Average (median) assets under management of LPs investing in each GP is almost $78 ($36) billion (*AverageLPSize)* and average (median) LP ESG transparency is 29% (25%). On average, almost 80% of LPs are domiciled in the same region as the GP (*HomeBias*).

Panel C indicates portfolio-level ESG risks and impact potential. The mean (median) GP has an ESG risk score (*ESGRisk*) of 30 (30) out of a theoretical maximum of 100, and 42 (38) percent of GPs' portfolio companies have a high or very high potential for impact, on average.

Finally, ESG disclosures are summarized in **Panel D**. Only 17% of all GPs are signatories to the UNPRI Reporting Framework (*PRI*). The mean (median) GP discloses 17% (8%) of the available ESG disclosure indicators (*ESGTransparency),* with an interquartile range of about 19%, and a maximum of 97%, suggesting that there is substantial variation in overall ESG transparency across GPs. To what extent each potential determinant of *ESGTransparency* explains GP's ESG disclosures remains an empirical question which we address next.

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[13] Listed PE and PD firms, such as KKR, face additional mandatory disclosure requirements. Our full model 1 inferences are qualitatively unchanged if we omit the 2% of our sample GPs that are listed. More specifically, if omitting listed GPs, we obtain a marginally significant positive coefficient on *OtherStrategies*, and all other coefficients and inferences remain fully unchanged, while the model R-squared slightly decreases to 0.518.

[14] Our full model 1 inferences are unchanged if rather omitting the diverse group of GPs with "other" strategies.

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4. Empirical Results

4.1 PE and PD Firm ESG Transparency Distributions

We start our analyses by investigating the distributions of our ESG transparency variables. **Panel A** of **Figure 1** shows each of the 10th, 25th, 50th, 75th, and 90th percentiles of *ESGTransparency,* for each of the E-, S-, and G-pillars, and for the GP-, portfolio-, and asset-levels. The median GP discloses 8% of all available ESG indicators. ESG transparency at the 90th percentile rests at a surprisingly low 51%. GPs are the least transparent on the E-pillar, with only the 90th percentile being non-zero, followed by the S- and G-pillars, which are respectively non-zero from the 75th and 25th percentiles onwards. Focusing on the reporting levels to which the disclosures relate, we find that transparency at the GP-level is highest, with the median GP disclosing 19% of the available GP-level indicators, followed by portfolio-level transparency and asset-level transparency, which are respectively non-zero from the 75th and 90th percentiles onwards. Taken together, these descriptive results present a picture of overall low private market ESG transparency, especially for disclosure indicators relating to the E-pillar and to the asset reporting level.[15]

Next, in **Panel B of Figure 1**, we show the ESG transparency distributions for large GPs only. We define large GPs as those 107 GPs that together constitute 50% of total funds raised in our sample, reflecting the highly concentrated nature of private markets. Overall, we find much higher levels of transparency for large GPs, with a median *ESGTransparency* of 51%. This compares to a lower 8% for the average GP, as shown in Panel A. In line with the results presented in Panel A, we find that the median E- and S-pillar transparencies (each 25%) are much lower than the median level of G-pillar disclosures (64%). Interestingly however, the 90th percentile for the E-pillar is 100%, indicating that several large GPs disclose all available E-pillar indicators, suggesting that some large GPs find environmental issues important (Matos, 2020). In line with the Panel A results, we find that ESG disclosures at the GP-, portfolio- and asset-level are monotonically decreasing. Disclosures at the GP-level are most prevalent (62.5%), followed by portfolio- and

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[15] We note that some environmental and social disclosures may be subsumed in sustainability reports or in mentions of ESG considerations or ESG investment strategies, which Preqin classifies as relating to the G-pillar. Regardless, our results that disclosure propensity of the more specific environmental indicators, relating to GHG emissions, environmental impact studies, and climate change policies, is relatively low, are indicative of GPs generally not disclosing many details about specific environmental issues.

asset-level disclosures (50% and 33%, respectively). Overall, these results suggest that the disclosure-related cost-benefit tradeoffs are more favorable for large GPs. Nevertheless, even large GPs are, on average, less transparent on the E- and S-pillars and for the portfolio and asset reporting-levels.

In our next analysis, we establish how GPs' propensity of ESG disclosure compares to that of public firms. Our new dataset allows us to map seven Preqin ESG disclosure indicators to the Refinitiv EIKON ESG database that are sufficiently comparable. We capture ISO standards, each of diversity, human rights, and whistleblower policies, as well as the disclosure of sustainability reports, the reporting of firm-level carbon emissions, and privacy policies. Our comparison is thus broadly representative of all components of ESG disclosure, capturing environmental-, social-, and governance-related disclosures, as well as the propensity of sustainability reports more generally. We compare the propensity of disclosure for our full sample as well as for a more limited sample representing large GPs with two public firm benchmarks: the propensity of ESG disclosures for the full FY2021 Refinitiv universe and for Refinitiv financial firms only.

The results are presented in **Figure 2**. Overall and across all seven indicators, we find that our sample GPs have much lower disclosure propensities than public (financial) firms. Most notably, these results attenuate but continue to hold for large GPs. For example, the propensity of disclosing diversity policies is 14% (62%) for all sample GPs (large GPs), which compares to 85% for Refinitiv financial firms, and to 84% for Refinitiv financial firms. Similarly, only 15% (47%) of our sample GPs (large GPs) disclose a sustainability report, which compares to 58% and 68% for the full Refinitiv universe and for Refinitiv financial firms, respectively. Large GPs are about as likely as Refinitiv financial firms to disclose privacy policies, but the *average* GP remains substantially less likely to disclose a privacy policy than public firms. Taken together, these results are in line with the generally more opaque and less regulated nature of private capital markets and the resulting comparatively lower disclosure frequencies, even for the very largest GPs.

To further substantiate how the disclosure propensities of our sample GPs compare to those of listed firms, we generate an average disclosure propensity variable based on the 7 overlapping indicators between Refinitiv and Preqin (*DisclosurePropensity)*. We regress *DisclosurePropensity* on an indicator taking the value of one for our sample GPs (*GP),* and control for firm size and headquarter country FE. **Table 3** presents results of these regressions for all our sample GPs and all firms in the Refinitiv universe in column (1), for a comparison with Refinitiv financial firms

only in column (2), and for a sample with only those GPs that are listed in column (3). In each column, we obtain a significantly negative coefficient on the *GP* indicator, further corroborating that GPs are less transparent than public firms even after controlling for firm size and country of headquarters. Economically speaking, the average GP is 39.5% (29.5%) less transparent than the average (financial) firm in the Refinitiv universe. Listed GPs are more transparent, but nevertheless rest at an economically important 18% lower transparency level than the average firm in the Refinitiv universe.

4.2   Cross-sectional Determinants of ESG Transparency: Univariate Tests

We next estimate univariate tests to investigate how ESG transparency varies by geographic region, investment strategy, ESG risk and impact potential, investor type, and several other GP and LP characteristics. The results are presented in **Table 4**.

Panel A tests for differences in ESG transparency across regions, taking the largest region – North America – as the benchmark. North American GPs, together representing over $4 trillion in total funds raised over the past 10 years, have an average ESG transparency of 18.26%. GPs headquartered in Developed Europe are significantly more transparent (30.90%), while GPs headquartered in each of the Emerging Asia-Pacific (5.76%), Developed Asia-Pacific (13.29%), Africa & Midlde East (12.85%), and Central & South America (13.87%) regions are significantly less transparent than their North American counterparts. The map in **Figure 3** further presents average ESG transparency levels by GP country of headquarters. The most transparent GPs are those headquartered in Switzerland (41%), followed by Norway, France, and Sweden (each 37%). Within the North American region, US GPs (18%) are slightly more transparent than their Canadian counterparts (17%). GPs headquartered in Emerging Asia substantially lack behind, with Chinese GPs being the least transparent (4%), followed by Indian GPs (12%). Together, these results establish that there is significant regional variation in GPs' ESG disclosures, and that those headquartered in higher E&S norm countries (Dyck et al., 2019) and in the more stringent ESG regulatory environment of the EU are more transparent.

Panel B shows the differences in average ESG transparency across GP investment strategies, taking the largest strategy – buyout – as the benchmark. Buyout firms, together representing almost $3 trillion in total funds raised over the past 10 years, have an average ESG transparency of 28.65%. Growth (18.87%) and VC (9.63%) firms are significantly less transparent, while PD

firms' average ESG transparency (28.18%) is insignificantly different from the transparency of buyout firms. The box-whisker plot in **Figure 4** further presents the distributions of each of the six ESG transparency subcomponents for each of the main GP strategies. Figure 4 indicates that VC and growth firms are not only much less transparent in general, but that the medians and IQRs of each of the ESG transparency components are lower for VC and growth firms in comparison to buyout and PD firms. Together, these descriptive results indicate that there is substantial heterogeneity in GPs' ESG disclosure that relates to GPs' main strategies, suggesting that the public disclosure of ESG information is substantially more costly, or alternatively less beneficial, for those GPs following VC and growth strategies, which may be a function of the life cycles of portfolio companies and the related information generation processes.

Next, we split the sample in quintiles for each ESG, GP and LP explanatory variable and test for differences in ESG transparency between the bottom and top quintiles.[16] The results are presented in panel C, D, and E. Our univariate tests presented in **Panel C** suggest that GPs in the top quintile of *ESGRisk* are more transparent than their bottom-quintile counterparts, while those GPs in the top quintile of *ImpactPotential* are, from the perspective of these univariate tests, not significantly more transparent than their bottom-quintile counterparts. These findings support a legitimacy theory perspective, with those facing *more* material ESG risks in their portfolio holdings increasing ESG disclosure levels (Cho & Patten, 2007). Turning to **Panel D**, GPs in the top quintile of *Age* and *lnFundsRaised* are significantly more transparent, suggesting that transparency increases in the number of years that a GP is established and in the size of a GP as proxied by funds raised. Moreover, consistent with the more stringent disclosure requirements and higher public scrutiny of listed firms, we find that listed GPs (*Listed)* are significantly more transparent than their non-listed counterparts, while those GPs with women or minority ownership (*WomenMinority)* are, perhaps surprisingly, significantly less transparent. The univariate tests reported in **Panel E** strongly support the conjecture that a GP's investor base is associated with disclosure levels. GPs with more transparent investors (LPs) as well as GPs with larger LPs as investors are significantly more transparent, while those GPs with an investor base that is geographically very close, and thus in the top quintile of *HomeBias,* are significantly less transparent. Finally, our test results in Panel E further suggest that GPs that have a relatively higher

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[16] For the *Listed* and *WomenMinority* variables, we test for differences between those that are listed or have female or minorities ownership versus those GPs that are not listed or do not have those ownership characteristics.

representation of development organizations, endowments, and pension funds within their investor base are much more transparent. These findings are in line with the notion that some LPs have non-pecuniary preferences (Barber et al., 2021; Heeb, et al., 2022), and that institutional investors drive ESG outcomes (Dyck et al., 2019).

While these univariate tests are indicative of predictable and systematic variation in GPs' ESG transparency levels, it remains an empirical question how each of these variables loads when considered together in a multiple regression model.

4.3   Multivariate regressions

In order to further investigate the determinants of GPs' ESG disclosure, we estimate variants of the following multiple regression model:

$$lnESGTransparency_i$$
$$= \alpha + \boldsymbol{\beta'VAR}(ESG)_i + \boldsymbol{\gamma'Region}_i + \boldsymbol{\lambda'VAR}(GP)_i + \boldsymbol{\delta'VAR}(LP)_i$$
$$+ \ \epsilon_i \qquad (1)$$

where $lnESGTransparency_i$ is the log-transformed percentage of ESG indicators disclosed by GP_i. *VAR(ESG)* captures a vector of variables describing GPs' portfolio-level ESG risks and impact potentials, *Region* is a vector of region dummies, *VAR(GP)* consists of a vector with GPs' investment strategies, funds raised, (average fund) age, listed status, and women or minority ownership status, and *VAR(LP)* consists of a vector with *HomeBias,* the percentage mix of LP types, and the average ESG transparency and size of LPs investing in GP_i. Standard errors are robust to heteroskedasticity and clustered at the GP headquarters country-level.

The regression results are presented in **Table 5**.[17] We start with regressing *lnESGTransparency* on the *ESGRisk* and *ImpactPotential* explanatory variables in column (1), and subsequently add each of the region, GP, and LP variables in columns (2), (3), and (4), respectively. Coefficient signs are broadly consistent across columns and, further mitigating

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[17] The regression coefficients for the investment strategy and region variables represent differences with the benchmark group, which is *Buyout* for the investment strategies and *NorthAmerica* for the headquarter regions. Similarly, the regression coefficients for the percentage LP type mix variables are relative to the omitted category *PercInstitAssetMngrs.*

multicollinearity concerns, all variance inflation factors (VIFs) are well below generally accepted thresholds.[18]

Our main results are fourfold. First, after controlling for GPs' region of headquarters and a host of GP and LP characteristics in our full model in column (4), we find that *ESGRisk* and *ImpactPotential* are each significantly positively related to the extent of ESG disclosure, indicating that both GPs with higher portfolio-level SASB ESG risks, as well as those GPs investing in portfolio companies with larger potentials for impact, have higher disclosure levels.[19] These results are consistent with the notion that ESG disclosure is increasing in industry-based ESG risks (e.g. Cho & Patten, 2007; Grougiou et al., 2016), and simultaneously support the notion that those more focused on impact find it beneficial to signal such ESG commitments with increased disclosure. In untabulated analyses, we further find that material environmental risks are most strongly associated with *lnESGTransparency*, in line with climate risk being the issue that receives most attention from long-term institutional investors (Matos, 2020; Krueger, Sautner, & Starks, 2020).[20] Economically speaking, a one standard deviation increase in *ESGRisk* and *ImpactPotential* is associated with a 5.11%, and a 5.56%, increase in *ESGTransparency*.[21] While these economic significances are lower than those on some of our other variables, it is nevertheless noteworthy that more fundamental GP and LP characteristics do not subsume the significance of these portfolio-level ESG factors.

Second, using North American GPs with an average *ESGTransparency* of 18.26% as the baseline category, we find that GPs in Developed Europe are significantly more transparent, while GPs in each of the Africa & Middle East, Central & South America, and the Developed and Emerging Asia-Pacific regions are significantly less transparent than their North American counterparts. Economically speaking, using our full model, GPs from Developed Europe are over 51% more transparent than their US counterparts, while those headquartered in Emerging Asia-

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[18] In our full model (1) regressions, the mean VIF is 1.54 and the maximum VIF does not exceed 2.44.

[19] The correlation between *ESGRisk* and *ImpactPotential* is 0.006 (insignificant, untabulated). *ESGRisk* and *ImpactPotential* thus capture two empirically uncorrelated constructs of the ESG characteristics of GPs' portfolios.

[20] Our inferences on *ESGRisk* are robust to rather only considering the E and S risks, omitting the G category.

[21] These, and subsequent economic significance calculations are based on the Table 4 column (4) results. We calculate the economic significance as $(exp^\beta - 1) * 100 * sd(variable)$. For example, for *ESGRisk,* the economic significance is calculated as: $(exp^{0.009} - 1) * 100 * 5.65 \approx 5.11\%$. A one standard deviation increase in *ESGRisk* is associated with a 5.11% increase in *ESGTransparency.* At the mean *ESGTransparency* of 17.35, this economic effect results in a predicted average ESG transparency of $17.35 * 1.0511 = 18.24\%$.

Pacific are a striking 61% less transparent.[22] These results are consistent with higher regulatory pressures and E&S norms in (Developed) Europe.

Third, we find that older, larger, more recently fund-raising, and listed GPs are significantly more transparent. More specifically, *Age* and *lnFundsRaised* are each significantly positively related to *lnESGTransparency,* while we obtain a negative and significant coefficient on *MeanVintage* – defined as 2022 minus the average vintage year of a GPs' funds – implying that those GPs that more recently raised funds, on average, are more transparent. In addition, taking *Buyout* with an average transparency of 28.65% as the baseline category, we find that VC and PD firms are significantly less transparent than buyout firms. Economically speaking, a one *percentage point* increase in total funds raised is associated with a 0.151% increase in *ESGTransparency* and a one standard deviation increase in *MeanVintage* is associated with a -6.10% decrease in GPs' ESG disclosures. GPs' listed status is associated with an 88% increase in *ESGTransparency,* while VC and PD firms are respectively 32% and 10% less transparent than buyout firms in our full model. These results together support the notion that larger, more heavily scrutinized, and fund-raising GPs, are more transparent. Buyout firms, in particular, are blamed for taking private carbon-intensive assets, attempting to escape the scrutiny that listed firms are subject to (Jenkins, 2021), and our findings suggest that buyout firms may attempt to mitigate such concerns with increased ESG disclosure relative to their peers.

Lastly, we find that a GPs investor base, as proxied by investor transparency and the relative weight of investors with a presumably high ESG preference, is significantly positively associated with a GPs' ESG transparency. More specifically, *AverageLPESGTrans* and the percentage of development organizations, endowments, foundations, pension funds, and wealth managers investing in GPs are each significantly positively associated with *ESGTransparency,* consistent with more transparent LPs investing in more transparent GPs, or, alternatively, more ESG-oriented LPs driving GPs' transparency levels. These findings are further consistent with several types of institutional investors having non-pecuniary preferences, where our findings on development organizations, foundations, and public pension funds corroborate those on the willingness to pay for impact of these types of investors in Barber et al. (2021). *HomeBias,*

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[22] Calculations for Developed Europe, and analogously for Emerging Asia-Pacific: $(\exp^{0.414} - 1) * 100 \approx 51\%$. The results are interpreted relative to the benchmark group North America, with an average ESG transparency of 18.26%. At the mean, for GPs from Developed Europe, ESG transparency increases to $18.26\% * 1.51 \approx 27.6\%$.

however, is significantly negatively related to *lnESGTransparency,* suggesting that GPs with many investors from the same headquarters region are less transparent.[23] Economically speaking, a one standard deviation increase in *AverageLPESGTrans* is associated with a 13% *increase* in *ESGTransparency,* while a one standard deviation increase in *HomeBias* is associated with a 13% *decrease* in *ESGTransparency.*

To further substantiate which determinants are most explanatory of GPs' ESG disclosures, we next provide an Owen-Shapley R-squared decomposition (Huettner & Sunder, 2011). Owen values reflect the incremental contribution to the overall R-squared for each variable based on all possible permutations of the model, and Shapley values represent the same but for groups of variables, considering only those permutations that are left when considering groups of variables together. As such, this approach allows us to investigate how much each variable, as well as each determinants group, incrementally contributes to our overall full-model explanatory power of 52.8%.

The results, presented in **Figure 5**, indicate that the most important group of disclosure determinants are the GP variables, with over 35% of the explained variation being due to these variables. This is followed by GPs' region of headquarters (33%) and the group of LP variables (29%). In contrast to these three groups, the ESG risk and impact potential variables are comparatively much less explanatory of *ESGTransparency*, with only 2% of overall explained variation being due to these two variables. **Table 6** further reports Owen values for each variable separately. The most explanatory determinants of *lnESGTransparency* are the *EmergingAsiaPacific* (21%) and *DevelopedEurope* (8%) region dummies, consistent with the much below average ESG transparency levels for GPs headquartered in Emerging Asia-Pacific, such as China and India, and the much higher transparency levels in Developed Europe, the GP variables *lnFundsRaised* (15%) and *VC* (10%)*,* and the LP variable *AverageLPESGTrans* (6%). In contrast, *ESGRisk* and *ImpactPotential* have much lower R-squared contributions, not exceeding 2.2% and 0.2%, respectively. While the statistical significances of these portfolio-level ESG risks variables are not subsumed by our other groups of variables, these results nevertheless suggest that such portfolio-level ESG factors are relatively unimportant in contrast to more fundamental GP variables, a GPs' investor base, and its regulatory environment.

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[23] All our inferences surrounding *HomeBias* are robust to rather defining home bias as the percentage of LPs from the same country, rather than region, as the GP.

4.4   PE and PD Firms' PRI Affiliations

In our next analysis, we use the United Nations Principles for Responsible Investment ("PRI") signatory status of a GP as an alternative ESG transparency proxy. PRI signatory status is used extensively in prior literature as a metric of asset managers' ESG commitments (Kim & Yoon, 2022; Gibson et al., 2022; Liang et al., 2022; Abraham et al., 2022). The PRI is one of the most widely adopted ESG frameworks, with asset managers representing over 100 trillion in AUM signing the principles. Not only is the PRI a signal of ESG commitments, but PRI signatories are also required to fill in extensive public surveys regarding their ESG performance. Since 11 out of the 37 disclosure indicators Preqin collects are sourced from the PRI reporting framework, we expect some, but not full, overlap between the two ESG transparency proxies.[24]

The results of logistic regressions with *PRI* as the dependent variable are presented in **Table 7**. In line with the results of our model (1) regressions, *ESGRisk, ImpactPotential*, *Age, lnFundsRaised*, *AverageLPESGTrans, WomenMinority,* and the percentages of development organizations, foundations, pension funds, and wealth managers investing in GP_i are each significantly positively associated with the probability of signing the PRI, while VCs are significantly less likely to sign the PRI. These overlapping results suggest that some of our model (1) findings generalize to the PRI setting and validate our *ESGTransparency* proxy. However, in contrast to our model (1) results, GPs headquartered in each region, except for the Emerging Asia & Pacific region which is also the least transparent region on *ESGTransparency,* are significantly *more* likely to sign the PRI than their North American counterparts. In addition, listed GPs are much more transparent, but not more likely to sign the PRI. Also, GPs with more mature funds (*MeanVintage*), or following a PD strategy, are less transparent, but not less likely to sign the PRI. These findings suggest that our continuous proxy of ESG transparency captures a partly overlapping, but nevertheless distinct, transparency construct. In addition, Preqin's ESG transparency data allows for more nuanced ESG-subcomponent analyses, which we consider next.

4.5   ESG Transparency and Subcomponents

In our final set of analyses, we contrast the determinants of overall ESG transparency with the determinants of each of the six ESG subcomponents: the E-, S-, and G-pillars, and the GP-, portfolio-, and asset-reporting levels. One major concern with ESG disclosures is that these may

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[24] The correlation between *lnESGTransparency* and *PRI* is 0.46 (p < 0.01, untabulated).

be boilerplate, implying that, regardless of the presence of disclosure, little to no meaningful information is reported (e.g. Lang & Stice-Lawrence, 2015; Christensen et al., 2021).

With respect to the reporting level analysis, we posit that GP-level disclosures are more likely to be boilerplate than portfolio- and asset-level disclosures. Firm-level disclosures primarily consist of several ESG-related GP-level policies and GP-level metrics of ESG considerations, female board representation, and GHG emissions. However, portfolio- and asset-level disclosures are more specific, indicative of ESG incorporation in investment strategies and in portfolio company monitoring, and costly to generate. Examples of portfolio- and asset-level disclosures are GPs' ESG- or impact-related fund offerings and dedicated ESG investment staff, as well as ESG-related engagement processes with investee companies, ESG educational programs, KPIs, and the tracking of GHG-emissions at portfolio companies, each of which requires extensive ESG-related information exchanges between GPs and portfolio companies. We thus next investigate the determinants of ESG transparency at each reporting level.[25]

The results of regressing each of *lnGPTransparency*, *lnPortfolioTransparency*, and *lnAssetTransparency* on our full model (1) determinants are reported in **Table 8**. There is considerable overlap in the signs and significance levels of disclosure determinants across reporting levels, with older, larger, and listed GPs each significantly more transparent at all reporting levels. In addition, GPs following a VC strategy appear to be less transparent at each reporting level, while those GPs with higher average levels of LP ESG transparency, as well as with higher percentages of development organizations, foundations, pension funds, and wealth managers as investors are significantly more transparent at all levels. Most notably, however, while North American GPs have significantly higher transparency levels at the GP-level than GPs headquartered in the Asia, Africa, South America, and Emerging Europe regions, we find that these results attenuate for portfolio-level transparency, and fully reverse for asset-level transparency, with GPs headquartered in each region, except for Central & South America, being significantly more transparent at the more specific asset disclosure level than their North American

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[25] The distributions of *lnEnvTransparency, lnSocialTransparency, lnPortfolioTranspareny*, and *lnAssetTransparency* each contain many zeros. We therefore alternatively represent the determinants of disclosure at each of these subcomponents as a binary classification problem, taking the value of one if a GP makes any disclosures at all. While this analysis represents a classification problem rather than a continuous disclosure dependent variable, causing some differences in significance levels, our inferences remain qualitatively unchanged.

counterparts.[26] These findings may be a function of lacking ESG disclosures of private US firms in comparison to other parts of the world with more extensive private firm reporting requirements. Similarly, while VC firms are always less transparent than buyout firms, each of growth and PD firms are primarily less transparent at the portfolio and asset-levels. In addition, *ESGRisk* is only positively and significantly related to ESG transparency at the portfolio- and asset-levels. Taken together, these results suggest that the costs and benefits of ESG disclosure differ across reporting levels, and that several GPs, among which those headquartered in North America and those following a growth strategy, may be comparatively transparent at the more generic GP-level, but fail to follow through at the more specific portfolio- and asset-levels. However, these results suggest that those facing high levels of material ESG risks in their investee companies, do increase disclosure at the more specific portfolio- and asset-levels.

Lastly, we report the results of regressions for each of the E-, S-, and G- pillars in **Table 9**. In line with the Table 8 results, we find that older, larger, more recently fund-raising, and listed GPs, as well as GPs with investors with high ESG transparency, are significantly more transparent for each of the E-, S-, and G-pillars, indicating that each of these determinants is associated with disclosure in consistent directions for each of the three pillars rather than for aggregate ESG transparency only. Interestingly, however, GPs headquartered in each region, except for the Developed European region, are less transparent than their North American counterparts for the governance pillar, but these results respectively attenuate and partly reverse for the social and environmental pillars, indicating that non-North American GPs are those more transparent about environmental issues. In addition, *ESGRisk* and *ImpactPotential* are each significant for the environmental and governance pillars, but not for the social pillars.[27] In summary, this set of analyses suggests that several disclosure determinants are significantly related to *ESGTransparency* for each ESG pillar and for all reporting levels. However, some GPs – North American GPs in particular – are more transparent at the GP-level and for governance-related disclosures, but fail to follow through at the asset-level and with more specific environmental disclosures.

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[26] 95% of GPs headquartered in the North American region are from the US.

[27] While these results are notable, Preqin tends to classify broader ESG disclosures, such as sustainability reports or ESG investment staff, under the "G" pillar. We therefore caution against overinterpreting these results.

5. Conclusion

Despite the dramatic increase in both responsible investing and private market investing in recent years, the extent and determinants of private market ESG disclosures remain an underexplored topic. The notions that PE and PD firms typically have long-term investment horizons, are affected by several new ESG disclosure regulations, and manage capital on behalf of several types of sophisticated institutional investors representing constituency groups that are increasingly scrutinizing the ESG performance of their investments suggest that the cost-benefit tradeoff of ESG disclosure may be beneficial for GPs. Our findings that, while overall ESG transparency in private markets is much lower than that of public firms, there is substantial and systematic heterogeneity in GPs' ESG transparency, indeed suggest that ESG considerations and disclosures have become relevant in private capital markets.

Our key findings on the variation in ESG transparency suggest that larger, older, more recently fund-raising, and listed GPs are more transparent, while those following a venture capital investment strategy are less transparent than those investing in more mature types of portfolio companies. Moreover, our findings suggest that country-level E&S norms, as well as region-based heterogeneity in disclosure regulation, carry over to GPs' ESG disclosures, with those headquartered in Developed Europe being the most transparent. In addition, the average transparency of LPs, as well as several types of LPs shown to have non-pecuniary preferences are all significantly positively associated with GPs' ESG transparency. Finally, each of portfolio-level ESG risks and portfolio-level impact potentials are positive and significant determinants of GPs' ESG transparency. When considering all groups of determinants together in multiple regressions, we find that GP characteristics dominate the explanatory power of our full models, followed by the GP's region of headquarters, and the group of LP variables. In contrast, portfolio-level ESG characteristics only contribute a comparatively negligible 2% to our full model explanatory power of 52%.

Our findings closely relate to several new regulatory initiatives and to societal debates on the transparency and accountability gap between public and private markets. Our results that private markets are comparatively less transparent but that the transparency distributions are highly skewed and that this variation is largely explained by our groups of ESG disclosure determinants are informative to policymakers. While the findings may support the need for further private

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market ESG disclosure regulations, they simultaneously provide nuance to claims that private markets are completely opaque.

Taken together, we conclude that, in the context of a global sample of private equity and debt firms representing 82% of total PE and PD funds raised, ESG transparency in private market remains comparatively low, while fund-raising and listed GPs, following buyout strategies, headquartered in Developed Europe, and with an investment base with comparatively high levels of ESG transparency and preferences, are more transparent.

Appendix 1: Overview of Preqin Disclosure Indicators

Appendix 1 presents an overview of Preqin's ESG transparency indicators, classified by firm-, portfolio, and asset-level indicators and on the propensity of GPs disclosing each indicator.

Indicator	% of GPs that disclose indicator	Pillar	Framework
GP Firm-level Indicators			
General partner firm-level governing, leadership, or executive bodies, including the board of directors	86.53	G	Ratings Providers
The ownership structure of the GP	49.69	G	Ratings Providers
General partner firm-level privacy policy	40.51	S	Ratings Providers
Any mention of ESG consideration in operations	33.98	G	SASB
Registered investment advisor or a registered broker dealer status	33.11	G	ILPA
A code of conduct policy for employees	30.00	G	ILPA
An insider trading policy	20.05	G	Ratings Providers
Statements, policies, or initiatives related to climate change	17.61	E	TCFD
Discloses a public sustainability report	14.67	G	Ratings Providers
A formal diversity policy or initiative	14.39	S	ILPA
A modern slavery or human rights policy	9.45	S	Ratings Providers
An anti-money laundering and/or "know your client" (AML KYC) policy	8.94	G	Ratings Providers
A whistleblower or anonymous incident reporting process	8.19	G	Ratings Providers
General partner firm-level carbon or GHG emissions	7.42	E	Ratings Providers
Female representation on the board of directors	6.63	G	Ratings Providers
Adherence to any ISO standards	3.47	S	Ratings Providers
GP Portfolio-level Indicators			
A list of investors by type (i.e., "family office")	33.04	G	UNPRI
Any mention of ESG consideration in investing	27.52	G	SASB
An investment policy that includes ESG issues	21.54	G	UNPRI
A policy specifying how ESG factors are used before investing in a company	20.43	G	UNPRI
Dedicated ESG investment staff	17.86	G	UNPRI
A policy specifying how ESG factors are used after investing in a company or in company exits	17.47	G	UNPRI
ESG due diligence reporting lines	16.48	G	UNPRI
Total AUM disclosed as subject to ESG criteria or policies	8.14	G	UNPRI

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Fund offerings sold as "ESG" or "ESG-themed" funds	5.42	G	UNPRI
Fund offerings sold as "Impact" or "SDG" funds	4.19	G	UNPRI
Total assets under management in ESG funds	1.88	S	UNPRI
Total assets under management in impact or SDG-related companies	1.35	S	UNPRI
GP Asset-level indicators			
A policy detailing engagement processes with portfolio companies	18.67	G	Ratings Providers
An engagement process or considerations specifically focused on ESG issues with portfolio companies	17.49	G	Ratings Providers
Reporting or monitoring portfolio companies using ESG KPIs	15.76	G	Ratings Providers
Investments in companies explicitly developing products in line with the UN Sustainable Development Goals	10.84	S	Ratings Providers
Tracking of GHG emissions at portfolio companies	8.63	E	Ratings Providers
The number of companies in the portfolio with whom engagements were conducted on ESG policies or issues	8.53	G	Ratings Providers
Evidence of environmental impact studies conducted on portfolio companies or properties	6.22	E	ILPA
ESG educational programs designed and run for portfolio companies	4.55	S	Ratings Providers
A code of conduct policy for portfolio companies	1.49	G	ILPA

Appendix 2: Variable Definitions

Variable	Definition
Dependent variables[28]	
lnESGTransparency	The natural logarithm of 1 + the percentage of ESG transparency indicators disclosed
lnEnvTransparency	The natural logarithm of 1 + the percentage of environmental indicators disclosed
lnSocialTransparency	The natural logarithm of 1 + the percentage of social indicators disclosed
lnGovTransparency	The natural logarithm of 1 + the percentage of governance indicators disclosed
lnGPTransparency	The natural logarithm of 1 + the percentage of GP-level indicators disclosed
lnPortfolioTransparency	The natural logarithm of 1 + the percentage of portfolio-level indicators disclosed
lnAssetTransparency	The natural logarithm of 1 + the percentage of asset-level indicators disclosed
PRI	A dummy variable taking the value of one if a GP is a signatory to the United Nations Principles for Responsible Investment and zero otherwise.
ESG Variables[29]	
ESGRisk	$\frac{Realized\ Risks}{Theoretically\ Possible\ Risks} * 100$, where Realized Risks represents the total number of material SASB ESG issues in a GPs' portfolio, and Theoretically Possible Risks is calculated as number of active portfolio companies * 26, with 26 being the maximum number of material SASB ESG issues for each portfolio company
ImpactPotential	The percentage of a GP's portfolio companies with likely or very likely impact potential. Preqin determines the impact potential of a portfolio company by its inclusion in an impact labeled fund or industry, and through textual analysis, matching a portfolio company's business description with the UN SDGs.
GP Variables	

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[28] See Appendix 1 for an overview of the ESG disclosures and the subcomponents the disclosures relate to.

[29] All continuous independent variables are winsorized at the 1st and 99th percentile.

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Age	2022 – the year a private equity or debt firm was established
Listed	A dummy variable taking the value of one if a GP is listed on any stock exchange worldwide and zero otherwise.
lnFundsRaised	ln(1 + total funds raised), where total funds raised is defined as the nominal dollar amount of capital raised for both private equity and debt funds in the past 10 years.
MeanVintage	2022 – the average vintage year of a GP's private equity and debt funds. The vintage year is the year of the funds' inception.
WomenMinority	A dummy variable taking the value of one if a GP is owned by women or minorities and zero otherwise. Preqin variables *WomenOwnedFirm* and *MinorityOwnedFirm*.
Buyout	A dummy variable taking the value of one if a GPs' predominant strategy is buyout and zero otherwise.
Growth	A dummy variable taking the value of one if a GPs' predominant strategy is growth, and zero otherwise.
OtherStrategies	A dummy variable taking the value of one if a GP follows another dominant strategy than Buyout, Growth, PD, or VC, with this group primarily consisting of GPs following Balanced strategies.
PD	A dummy variable taking the value of one if a GP follows a predominant private debt strategy, defined as total funds raised in private debt exceeding total funds raised in private equity.
VC	A dummy variable taking the value of one if a GP follows a predominant venture capital strategy and zero otherwise.

LP Variables[30]

AverageLPESGTrans	The average ESG transparency of LPs investing in a GP. LP ESG Transparency is based on 12 transparency indicators available in the Preqin Pro Investor tab.
HomeBias	The percentage of LPs from the same region as GP_i. The regions are based on the 7 region dummies in the full model regressions.
lnAverageLPSize	The natural logarithm of 1 + the average assets under management of all LPs investing in GP_i.

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[30] We follow Barber et al. (2021) in classifying LPs in 9 groups.

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PercCorpGovPortfolios	The percentage of LPs of GP_i classified as corporate or government investors. Preqin codes "Corporate Investor", "Sovereign Wealth Fund", "Government Agency", and "State-Owned Enterprise".
PercDevelopmentOrg	The percentage of LPs of GP_i classified as development organizations. We classify all LPs with "development bank" or development finance" in their name or background descriptions as development organizations, and further manually classify all multilateral development organizations (e.g. the International Finance Corporation) and all organizations part of the WFDFI, EDFI, ADFI, ELTIA, ALIDE, ADFIMI, and ADFIAP as development organizations.
PercEndowment	The percentage of LPs of GP_i classified as endowments. Preqin code "Endowment Plan".
PercFinancialInst	The percentage of LPs of GP_i classified as financial institutions. Preqin codes "Investment Bank", "Bank", "Insurance Company".
PercFoundation	The percentage of LPs of GP_i classified as foundations. Preqin code "Foundation".
PercInstitAssetMngr	A residual category with LPs that represents a diverse investor base. For example, Adams Street Partners.
PercPrivatePension	The percentage of LPs of GP_i classified as private pensions. Preqin codes "Private Sector Pension Fund" and "Superannuation Scheme".
PercPublicPension	The percentage of LPs of GP_i classified as public pensions. Preqin code "Public Pension Fund".
PercWealthMngr	The percentage of LPs of GP_i classified as wealth managers. Preqin codes "Family Office – Multi", "Family Office – Single", and "Wealth Manager".

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Figure 1: Distribution of ESG Transparency Variables

The dot plots in figure 1 represent the distributions of *ESGTransparency* and its components *EnvTransparency, SocialTransparency, GovTransparency, GPTransparency, PortfolioTransparency,* and *AssetTransparency*. Panel A represents the ESG transparency distributions for the full sample (N = 4150) and panel B represents the ESG transparency distribution for the subsample of GPs that represent 50% of total funds raised in our sample (N = 107). Circles represent the 10th percentile, diamonds the 25th percentile, triangles the median, squares the 75th percentile, and the 90th percentile is represented with a plus. All variables are defined in detail in the variable definition appendix.

Panel A: Full Sample
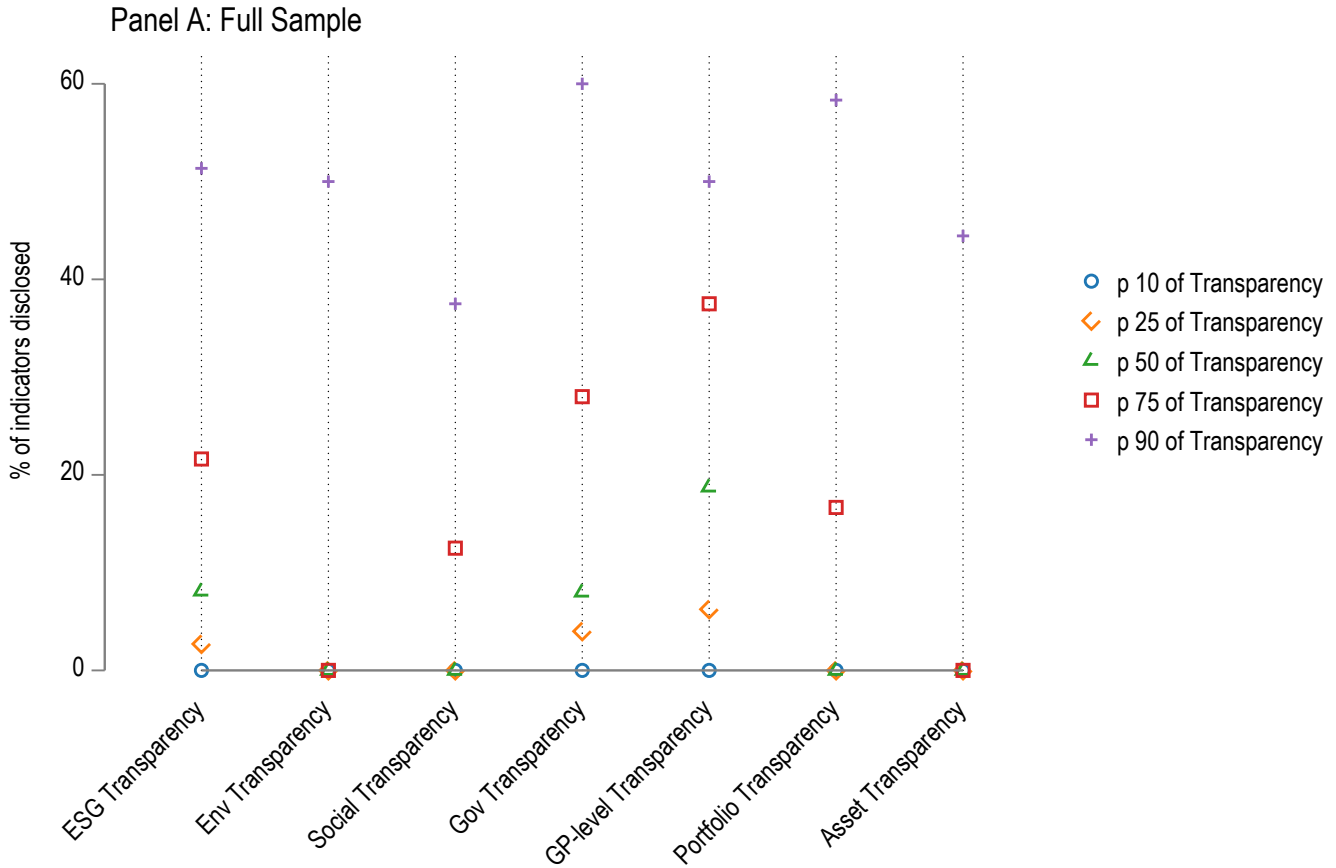
Panel B: Large GPs
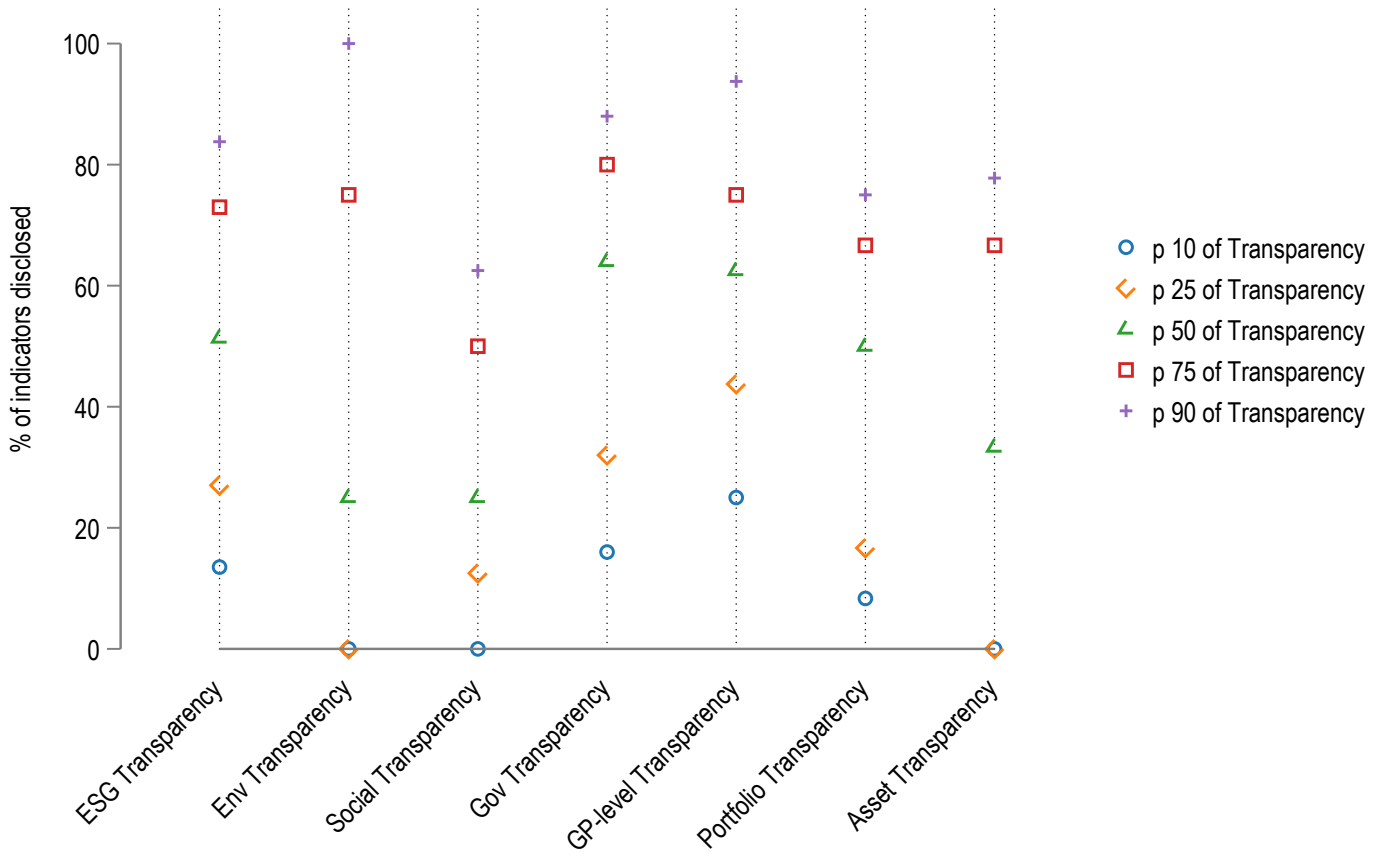
Figure 2: Comparison ESG Disclosure Public and Private Markets

Figure 2 represents the frequency of disclosure of several ESG indicators for our 4150 sample GPs, for the largest GPs in our sample that together represent 50% of total funds raised (N = 107), for financial firms in the FY2021 Refinitiv universe based on GICS Sector classifications, and for the full FY2021 Refinitiv universe excluding financials. The top bars represent disclosure frequency for our sample GPs, the second bars for large GPs, the third bars for Refinitiv financial firms, and the bottom bars for the full Refinitiv universe excluding financials.

Figure 3: Average ESG Transparency by GP Country of Headquarters

Figure 3 represents the average *ESGTransparency* by GP country of headquarters. We calculate the average for countries with more than 10 observations. Darker green colors represent higher average levels of ESG transparency.
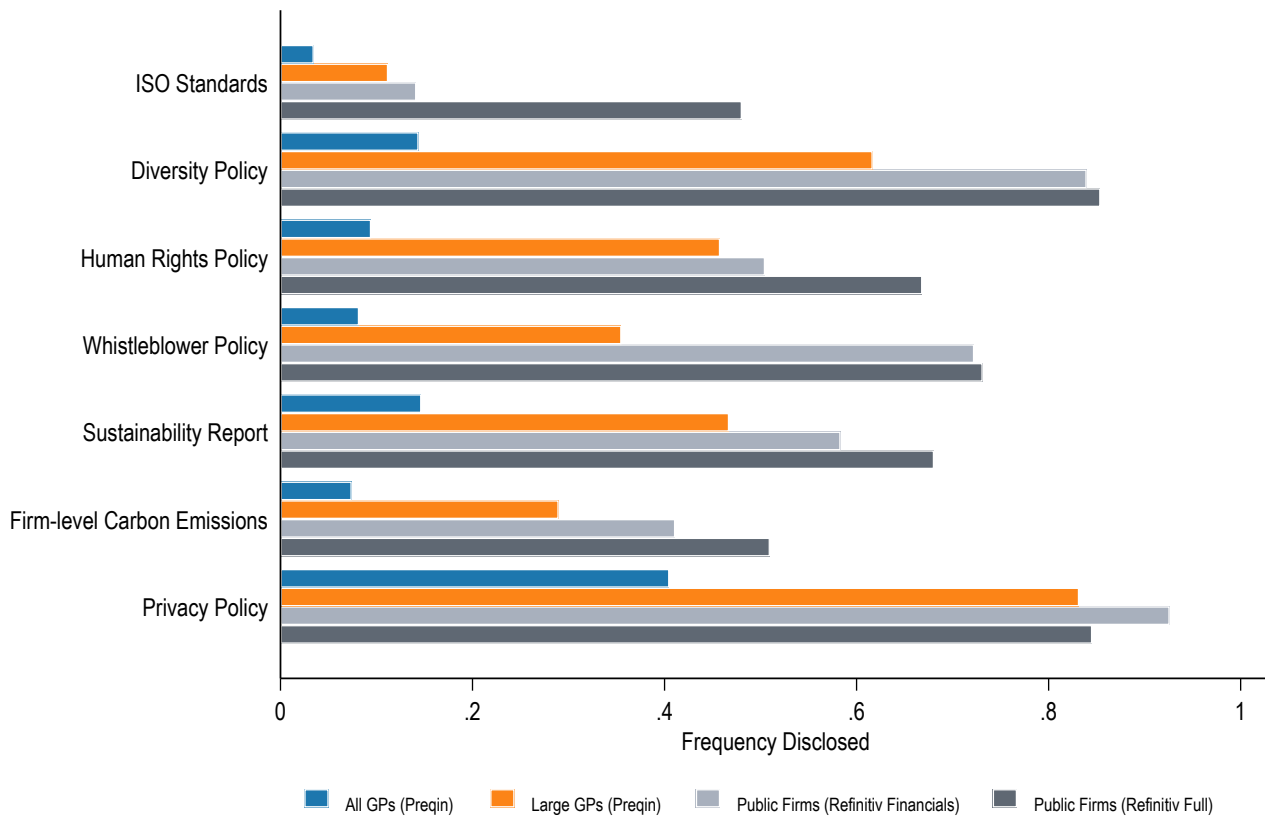
Figure 4: ESG Transparency by GP Main Strategy

The box-whisker plots in Figure 4 represent the distribution of the ESG transparency variables by GP main firm strategy: *Buyout, VC, Growth, PD,* and *OtherStrategies.* All strategies are defined in detail in the variable definition appendix.
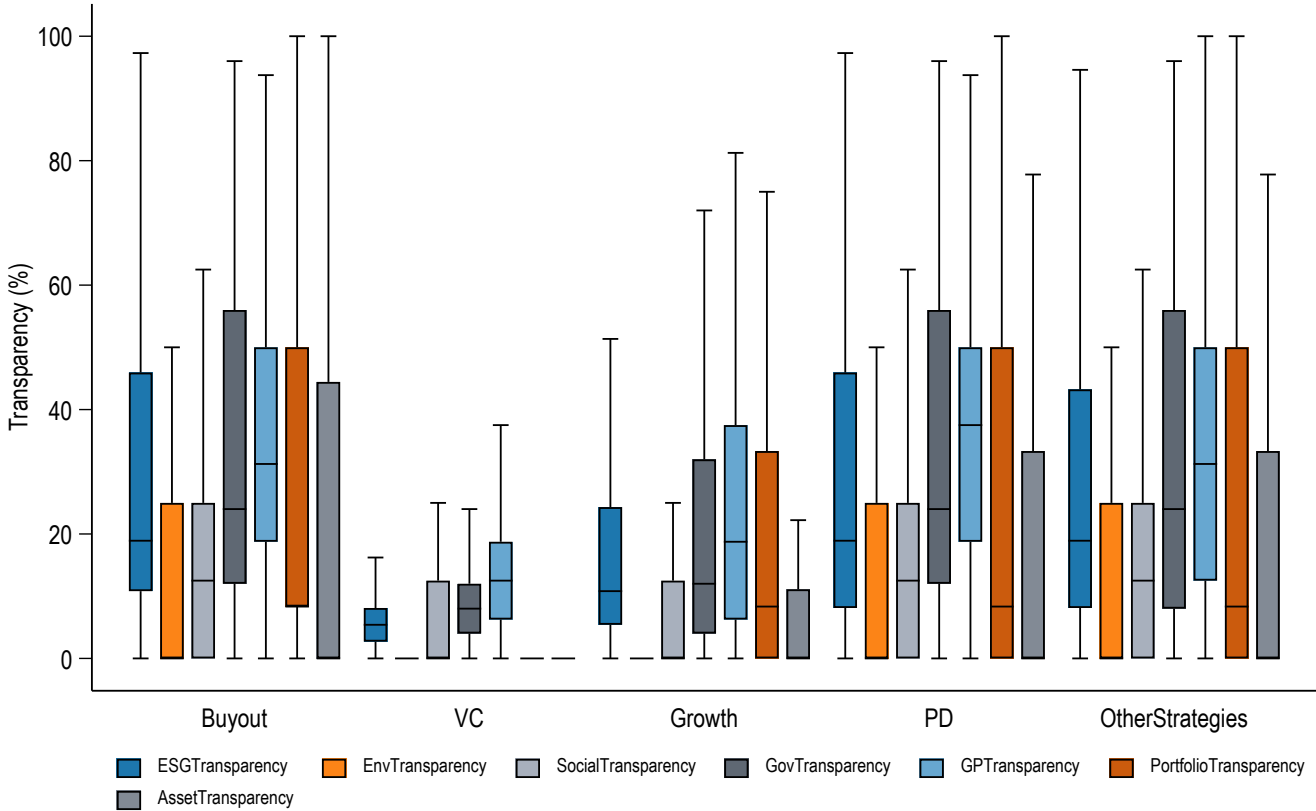
excludes outside values

Figure 5: Relative Contribution of Groups of ESG Transparency Determinants to Full Model R-squared

Figure 5 shows the relative contribution of each group of determinants of ESG transparency to the full model (1) R-squared. The bars show the percentage contribution of each group to overall R-squared and the lines represent the 90% confidence interval based on 100 bootstrap replications. *ESG* consists of *ESGRisk* and *ImpactPotential*. *Region* consists of a group of region dummies representing GPs' regions of headquarters. *GP* consists of GP characteristics, including each of *lnFundsRaised, MeanVintage, Listed, WomenMinority,* and GP strategy dummies. *LP* consists of LP characteristics, including each of *lnAverageLPSize, AverageLPESGTrans, HomeBias,* and the percentage mix of LP types investing in a GP. All continuous explanatory variables are winsorized at the 1st and 99th percentile and all variables are defined in the variable definition appendix.
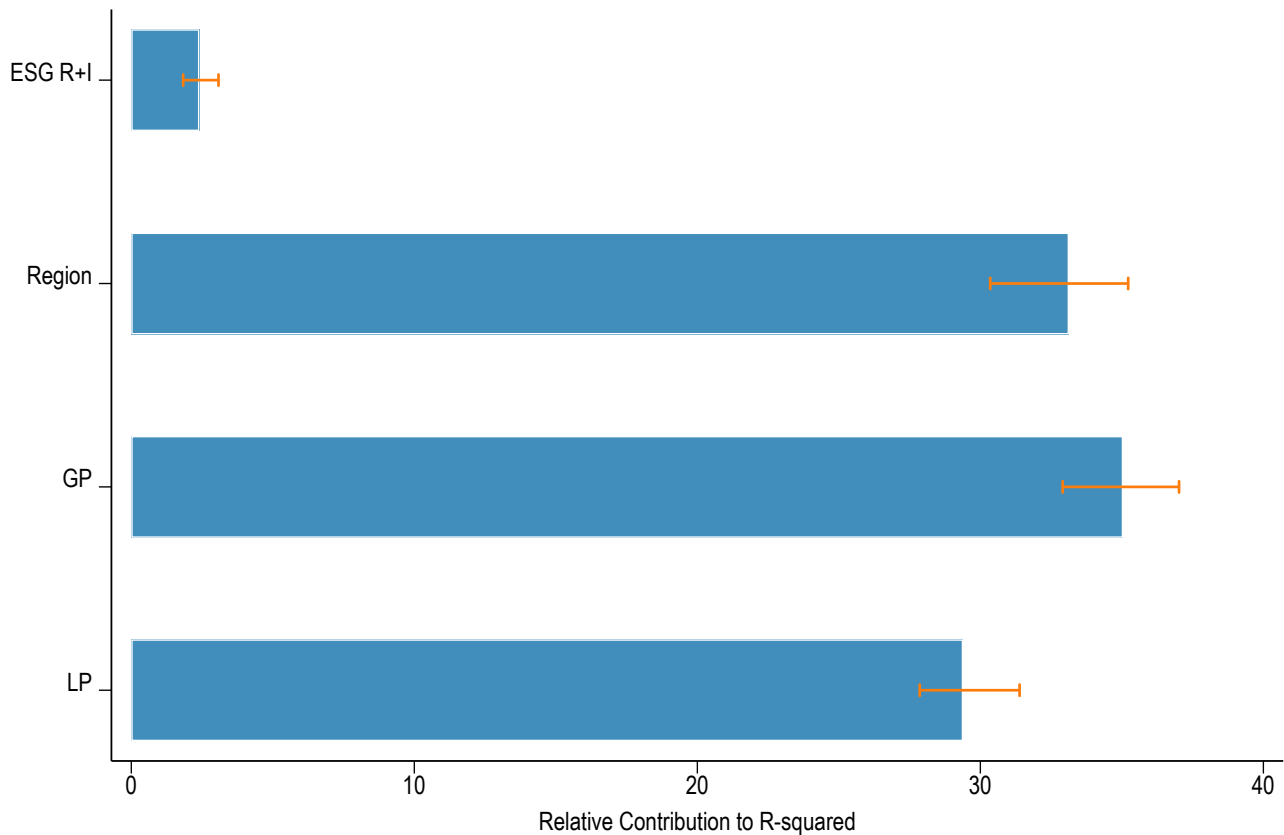
Table 1: Sample Selection

	Number of GPs	Total funds raised ($bn)
Full Preqin Pro Fund Manager Data	35216	8219
Dropping:		
Missing *ESGTransparency*	-914	-16
Number of GPs with transparency data	34302	8203
Missing *ESGRisk* and *ImpactPotential*	-24714	-802
Missing GP variables	-1393	-52
Missing LP variables	-4034	-595
Missing GP Headquarters Region	-11	-38
Number of sample GPs	4150	6716

Table 2: Full Sample Descriptive Statistics

Table 2 presents full sample descriptives for all variables used in our full model regressions. Transparency variables are left unaltered, and all other continuous variables are winsorized at the 1st and 99th percentile. All variables are defined in detail in the variable definition appendix. Log-transformed variables exponentialized for ease of interpretation.

	N	Mean	p25	Median	p75	Std. Dev.
Panel A: GP Variables						
Age	4150	15.72	8.00	13	21	10.76
lnFundsRaised	4150	1360.25	90.24	285.31	904.13	3701.49
MeanVintage	4150	6.69	4.00	6	9	3.62
Listed	4150	.02	0.00	0	0	.13
WomenMinority	4150	.08	0.00	0	0	.27
VC	4150	.52	0.00	1	1	.5
Buyout	4150	.22	0.00	0	0	.41
Growth	4150	.14	0.00	0	0	.34
PD	4150	.08	0.00	0	0	.27
OtherStrategies	4150	.04	0.00	0	0	.2
Panel B: LP Variables						
AverageLPESGTrans	4150	28.99	5.56	25	44.27	25.25
lnAverageLPSize	4150	77840.75	7929.00	35945.1	93737.52	120996.73
HomeBias	4150	79.89	72.73	100	100	32.42
PercCorpGovPortfolios	4150	20.01	0.00	0	33.33	30.96
PercDevelopmentOrg	4150	4.77	0.00	0	0	15.66
PercEndowment	4150	2.92	0.00	0	0	8.3
PercFinancialInst	4150	16.09	0.00	0	22.38	25.41
PercFoundation	4150	10.21	0.00	0	10	21.76
PercInstitAssetMngr	4150	20.48	0.00	9.09	33.33	27.53
PercPrivatePension	4150	10.29	0.00	0	16.67	18.59
PercPublicPension	4150	12.74	0.00	0	20	21.71
PercWealthMngr	4150	1.86	0.00	0	0	7.56
Panel C: ESG R+I						
ESGRisk	4150	30.45	26.57	29.88	33.55	5.65
ImpactPotential	4150	42.49	24.88	37.73	55.67	27.79
Panel D: Transparency						
ESGTransparency	4150	17.35	2.70	8.11	21.62	20.37
EnvTransparency	4150	9.37	0.00	0	0	23.09
SocialTransparency	4150	10.62	0.00	0	12.5	16.3
GovTransparency	4150	20.78	4.00	8	28	22.99
GPTransparency	4150	23.79	6.25	18.75	37.5	21.57
PortfolioTransparency	4150	14.4	0.00	0	16.67	23.3
AssetTransparency	4150	9.84	0.00	0	0	21.29
PRI	4150	.17	0.00	0	0	.38

Table 3: Refinitiv ESG Disclosure Propensity Comparison

Table 3 presents results of regressing the average propensity of disclosing each of the 7 overlapping disclosure indicators between Refinitiv EIKON's ESG database and Preqin ESG. The first column compares the full sample of GPs with the full sample of Refinitiv firms with FY2021 data, the second column compares the full sample of GPs with Refinitiv financial firms only, and the third column compares only those GPs that are listed with the full sample of Refinitiv firms. Size is measured as log-transformed total assets for Refinitiv firms and as the log-transformed total funds raised for our sample GPs. All specifications include headquarters country fixed effects and standard errors are robust and clustered at the headquarters country level.

DV = DisclosurePropensity	(1) GP Full Sample vs. Refinitiv Full Sample	(2) GP Full Sample vs. Refinitiv Financial Firms	(3) Listed GPs vs. Refinitiv Full Sample
GP	-.395***	-.295***	-.18***
	(.028)	(.033)	(.053)
Size	.05***	.042***	.057***
	(.005)	(.005)	(.004)
_cons	.275***	.204***	.233***
	(.041)	(.055)	(.032)
Observations	12742	5436	8665
R-squared	.632	.577	.348
COUNTRY FE	YES	YES	YES

Standard errors are in parentheses
*** *p<.01, ** p<.05, * p<.1*

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Table 4: Univariate Tests

Table 4 Panel A presents descriptive statistics on ESG transparency and funds raised for GPs by region of headquarters. The t-tests in Panel A test for the difference in average ESG transparency with GPs headquartered in the largest region, North America, as the benchmark group. Panel B presents descriptive statistics on ESG transparency and funds raised by GP strategy. The t-tests in Panel B test for the difference in average ESG transparency with the largest group, buyout, as the benchmark. Panel C, D, and E, present descriptive statistics for ESG variables, GP variables, and LP variables, respectively. We present average ESG transparency for GPs in the top and bottom quintile of each explanatory variable, and test for the difference between the top and bottom quintile GPs.

Panel A: Region	Number of GPs	Region total funds raised (USD billion)	Average Region ESGTransparency (%)	Difference versus benchmark region (North America)	t-value
North America	1672	4028	18.26	NA	NA
Developed Europe	804	1364	30.90	12.65	14.6
Emerging Asia-Pacific	789	817	5.76	-12.50	-18.15
Developed Asia-Pacific	622	386	13.29	-4.96	-5.85
Emerging Europe	56	52	19.64	1.39	0.60
Africa & Middle East	138	45	12.85	-5.407	-3.50
Central & South America	69	25	13.87	-4.39	-2.05

Panel B: Strategy	Number of GPs	Strategy total funds raised (USD billion)	Average strategy ESGTransparency (%)	Difference versus benchmark strategy (Buyout)	t-value
Buyout	912	2997	28.65	NA	NA
VC	2160	1400	9.63	-19.02	-28.4
PD	332	1051	28.18	-0.47	-0.30
Growth	565	715	18.87	-9.78	-8.3
Other	181	554	27.90	-0.74	-0.40

Panel C: ESG Variables	Number of GPs	Average GP transparency for top quintile (%)	Average GP transparency for bottom quintile (%)	Difference top – bottom quintile	t-value
ESG Risk	4150	22.77	11.72	11.05	11.90
Impact Potential	4150	15.35	14.37	0.97	1.10

Panel D: GP Variables	Number of GPs	Average GP transparency for top quintile (%)	Average GP transparency for bottom quintile (%)	Difference top – bottom quintile	t-value
Age	4150	28.70	10.72	17.97	18.50
lnFundsRaised	4150	33.09	8.07	25.03	25.55
MeanVintage	4150	19.28	14.15	5.13	5.60
Listed	4150	49.50	16.78	32.73	13.90
WomenMinority	4150	14.77	17.57	-2.79	-2.35

Panel E: LP Variables	Number of GPs	Average GP transparency for top quintile (%)	Average GP transparency for bottom quintile (%)	Difference top – bottom quintile	t-value

AverageLPESGTrans	4150	24.16	6.69	17.47	19.85
lnAverageLPSize	4150	21.47	8.01	13.46	15.90
HomeBias	4150	12.51	22.08	-9.57	-13.10
PercCorpGovPortfolios	4150	7.16	17.01	-9.85	-12.25
PercDevelopmentOrg	4150	22.95	16.34	6.61	7.60
PercEndowment	4150	25.70	15.09	10.62	13.80
PercFinancialInst	4150	16.01	11.72	4.29	6.25
PercFoundation	4150	17.56	13.71	3.86	5.40
PercInstitAssetMngr	4150	14.04	12.74	1.30	1.80
PercPrivatePension	4150	25.86	11.81	14.05	19.55
PercPublicPension	4150	25.50	11.74	13.76	18.80
PercWealthMngr	4150	27.98	15.89	12.09	12.70

Table 5: ESG Transparency Regressions

Table 5 presents results of regressing *lnESGTransparency* on our full model (1) variables. The first column presents results of regressing *lnESGTransparency* on the ESG variables *ESGRisk* and *ImpactPotential.* Column (2) adds region dummies, column (3) adds GP variables, and column (4) adds LP explanatory variables. Standard errors are robust-clustered at the GP headquarters country level and reported in parentheses. The benchmark groups for the region and strategy dummies are *NorthAmerica* and *Buyout,* respectively, and the benchmark for the percentage mix of LPs is *PercInstitAssetMngrs.* All continuous explanatory variables are winsorized at the 1st and 99th percentile and all variables are defined in detail in the variable definition appendix.

	(1)	(2)	(3)	(4)
	lnESGTransparency	lnESGTransparency	lnESGTransparency	lnESGTransparency
ESG Variables				
ESGRisk	.037***	.032***	.01***	.009***
	(.003)	(.005)	(.003)	(.003)
ImpactPotential	.001	0	.002***	.002***
	(.001)	(.001)	(.001)	(0)
Region Dummies				
AfricaMiddleEast		-.46***	-.177*	-.362***
		(.077)	(.091)	(.083)
CentralSouthAmerica		-.486***	-.238**	-.498***
		(.123)	(.093)	(.119)
DevelopedAsiaPacific		-.785***	-.561***	-.45***
		(.173)	(.163)	(.11)
DevelopedEurope		.411***	.418***	.414***
		(.064)	(.04)	(.059)
EmergingAsiaPacific		-1.489***	-1.204***	-.933***
		(.219)	(.234)	(.124)
EmergingEurope		-.134	.11	-.139
		(.12)	(.113)	(.133)
GP Variables				
Age			.013***	.014***
			(.003)	(.003)
lnFundsRaised			.168***	.151***
			(.02)	(.014)
MeanVintage			-.012	-.017***
			(.009)	(.006)
Listed			.648***	.63***
			(.096)	(.084)
WomenMinority			.124**	.065*
			(.052)	(.035)
Growth			-.034	-.09
			(.068)	(.065)
VC			-.444***	-.382***
			(.069)	(.089)
PD			-.094**	-.105***
			(.039)	(.034)
OtherStrategies			.063	.072
			(.084)	(.063)
LP Variables				
AverageLPESGTrans				.005***

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				(.002)
lnAverageLPSize				.01
				(.007)
HomeBias				-.004***
				(.001)
PercCorpGovPortios				.001
				(.001)
PercDevelopmentOrg				.008***
				(.002)
PercEndowment				.004**
				(.002)
PercFinancialInst				.001
				(.001)
PercFoundation				.006***
				(.001)
PercPrivatePension				.007***
				(.001)
PercPublicPension				.005***
				(.001)
PercWealthMngr				.007**
				(.003)
_cons	1.128***	1.619***	1.273***	1.133***
	(.266)	(.134)	(.163)	(.152)
Observations	4150	4150	4150	4150
R-squared	.03	.325	.483	.528

Standard errors are in parentheses

*** *p<.01, ** p<.05, * p<.1*

Table 6: R-squared Decomposition

Table 6 presents the individual and group R-squared contributions of our full model regressors. The dependent variable is *lnESGTransparency*. Significance levels are based on heteroskedasticity robust standard errors clustered at the GP headquarters country level. The benchmark groups for the region and strategy dummies are *NorthAmerica* and *Buyout,* respectively, and the benchmark for the percentage mix of LPs is *PercInstitAssetMngrs.* All continuous explanatory variables are winsorized at the 1st and 99th percentile and all variables are defined in detail in the variable definitions appendix.

Groups	Regressors	Coef.	Individual R-squared Contribution	Group R-squared contribution
ESG R+I	ESGRisk	0.009***	2.167	2.395
	ImpactPotential	0.002***	0.228	
Region	EmergingAsiaPacific	-0.933***	20.727	33.089
	DevelopedEurope	0.414***	8.060	
	DevelopedAsiaPacific	-0.450***	3.632	
	AfricaMiddleEast	-0.362***	0.344	
	CentralSouthAmerica	-0.498***	0.237	
	EmergingEurope	0.272	0.087	
GP	lnFundsRaised	0.151***	14.672	35.075
	VC	-0.382***	10.221	
	Age	0.014***	5.632	
	Listed	0.630***	1.527	
	PD	-0.105**	0.806	
	MeanVintage	-0.017***	0.749	
	Growth	-0.090	0.714	
	OtherStrategies	0.330	0.489	
	WomenMinority	0.153*	0.266	
LP	AverageLPESGTrans	0.005***	6.176	29.441
	PercCorpGovPortfolios	0.165	4.932	
	PercPrivatePension	0.007***	4.793	
	PercPublicPension	0.005***	3.568	
	lnAverageLPSize	0.305	3.115	
	HomeBias	-0.004***	2.944	
	PercFoundation	0.006***	2.208	
	PercDevelopmentOrg	0.008***	0.815	
	PercEndowment	0.004**	0.422	
	PercFinancialInst	0.163	0.343	
	PercWealthMngr	0.007**	0.125	

Table 7: Logistic Regressions Principles for Responsible Investment

Table 7 presents results of logistic regressions with a dummy variable taking the value of one if a GP is a PRI signatory as the dependent variable. The first column presents results of regressing *PRI* on the ESG variables *ESGRisk* and *ImpactPotential.* Column (2) adds region dummies, column (3) adds GP variables, and column (4) adds LP explanatory variables. Standard errors are robust-clustered at the GP headquarters country level and reported in parentheses. The benchmark groups for the region and strategy dummies are *NorthAmerica* and *Buyout,* respectively, and the benchmark for the percentage mix of LPs is *PercInstitAssetMngrs* All continuous explanatory variables are winsorized at the 1st and 99th percentile and all variables are defined in detail in the variable definition appendix.

	(1) PRI	(2) PRI	(3) PRI	(4) PRI
ESG Variables				
ESGRisk	.063***	.065***	.029***	.025***
	(.007)	(.006)	(.007)	(.007)
ImpactPotential	.001	.001	.007***	.006***
	(.001)	(.001)	(.002)	(.002)
Region Dummies				
AfricaMiddleEast		.265	1.15***	.966***
		(.275)	(.287)	(.259)
CentralSouthAmerica		.896***	1.806***	1.553***
		(.153)	(.251)	(.285)
DevelopedAsiaPacific		.154	.831***	.951***
		(.257)	(.281)	(.198)
DevelopedEurope		1.986***	2.502***	2.495***
		(.187)	(.227)	(.25)
EmergingAsiaPacific		-1.083***	-.279**	.074
		(.078)	(.11)	(.189)
EmergingEurope		.825**	1.729***	1.523***
		(.349)	(.454)	(.465)
GP Variables				
Age			.019***	.022***
			(.005)	(.005)
lnFundsRaised			.43***	.384***
			(.037)	(.039)
MeanVintage			-.004	-.017
			(.016)	(.013)
Listed			.369	.389
			(.375)	(.365)
WomenMinority			.392**	.35**
			(.169)	(.178)
Growth			-.072	-.09
			(.153)	(.147)
VC			-.974***	-.883***
			(.212)	(.2)
PD			.211	.244
			(.311)	(.338)
OtherStrategies			.459	.537
			(.39)	(.394)
LP Variables				
AverageLPESGTrans				.01***
				(.003)

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lnAverageLPSize				.099**
				(.049)
HomeBias				-.002
				(.003)
PercCorpGovPortfolios				.001
				(.004)
PercDevelopmentOrg				.008*
				(.004)
PercEndowment				-.006
				(.009)
PercFinancialInst				-.003
				(.003)
PercFoundation				.011***
				(.004)
PercPrivatePension				.015***
				(.003)
PercPublicPension				.005**
				(.003)
PercWealthMngr				.023***
				(.006)
_cons	-3.581***	-4.211***	-6.36***	-7.584***
	(.406)	(.182)	(.464)	(.703)
Observations	4150	4150	4150	4150
Pseudo R^2	.021	.169	.292	.31

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1

Table 8: GP-level, Portfolio-level, and Asset-level Transparency Component Regressions

Table 8 presents results of regressing our full model explanatory variables on each of the GP-level, Portfolio-level, and asset-level disclosures that together constitute aggregate ESG transparency. Column 1 replicates the Table 4 column (4) full model regression with *lnESGTransparency* as the dependent variable. Column 2, 3, and 4 show results of regressions with *lnGPTransparency, lnPortfoliolTransparency,* and *lnAssetTransparency* as the dependent variables, respectively. Standard errors are robust-clustered at the GP headquarters country level and reported in parentheses. The benchmark groups for the region and strategy dummies are *NorthAmerica* and *Buyout,* respectively, and the benchmark for the percentage mix of LPs is *PercInstitAssetMngrs.* All continuous explanatory variables are winsorized at the 1st and 99th percentile and all variables are defined in detail in the variable definitions appendix.

	(1)	(2)	(3)	(4)
	lnESGTransparency	lnGPTransparency	lnPortfolioTransparency	lnAssetTransparency
ESG Variables				
ESGRisk	.009***	.004	.022***	.016***
	(.003)	(.003)	(.004)	(.005)
ImpactPotential	.002***	.001**	.002***	.003***
	(0)	(0)	(.001)	(.001)
Region Dummies				
AfricaMiddleEast	-.362***	-.522***	-.131	.282*
	(.083)	(.088)	(.215)	(.149)
CentralSouthAmerica	-.498***	-.633***	-.169	.007
	(.119)	(.107)	(.2)	(.17)
DevelopedAsiaPacific	-.45***	-.652***	-.139	.358**
	(.11)	(.1)	(.16)	(.149)
DevelopedEurope	.414***	.108**	.853***	1.27***
	(.059)	(.042)	(.131)	(.114)
EmergingAsiaPacific	-.933***	-1.251***	-.291***	.196**
	(.124)	(.165)	(.051)	(.085)
EmergingEurope	-.139	-.439***	.415*	.56**
	(.133)	(.116)	(.222)	(.234)
GP Variables				
Age	.014***	.011***	.019***	.021***
	(.003)	(.004)	(.004)	(.003)
lnFundsRaised	.151***	.133***	.197***	.171***
	(.014)	(.019)	(.018)	(.022)
MeanVintage	-.017***	-.012*	-.036***	-.026***
	(.006)	(.007)	(.008)	(.006)
Listed	.63***	.584***	.704***	.958***
	(.084)	(.094)	(.148)	(.268)
WomenMinority	.065*	.045	.058	.148*
	(.035)	(.041)	(.059)	(.082)
Growth	-.09	-.05	-.3***	-.239***
	(.065)	(.063)	(.11)	(.083)
VC	-.382***	-.241**	-.919***	-.54***
	(.089)	(.106)	(.169)	(.115)
PD	-.105***	-.062*	-.221***	-.246**
	(.034)	(.033)	(.059)	(.103)
OtherStrategies	.072	.059	.007	.075
	(.063)	(.054)	(.093)	(.17)

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LP Variables

AverageLPESGTrans	.005***	.005**	.007***	.006***
	(.002)	(.002)	(.002)	(.001)
lnAverageLPSize	.01	.007	.015	0
	(.007)	(.009)	(.009)	(.011)
HomeBias	-.004***	-.004***	-.001	-.003***
	(.001)	(.001)	(.001)	(.001)
PercCorpGovPortfolios	.001	.001	.001*	.002**
	(.001)	(.001)	(.001)	(.001)
PercDevelopmentOrg	.008***	.007***	.009***	.007***
	(.002)	(.003)	(.003)	(.002)
PercEndowment	.004**	.005***	.002	0
	(.002)	(.002)	(.003)	(.002)
PercFinancialInst	.001	.001	.001	.001
	(.001)	(.001)	(.001)	(.001)
PercFoundation	.006***	.006***	.006***	.005***
	(.001)	(.001)	(.001)	(.002)
PercPrivatePension	.007***	.007***	.008***	.004***
	(.001)	(.001)	(.001)	(.001)
PercPublicPension	.005***	.005***	.006***	.003***
	(.001)	(.001)	(.001)	(.001)
PercWealthMngr	.007**	.007*	.005*	.006***
	(.003)	(.004)	(.003)	(.002)
_cons	1.133***	2.011***	-.694***	-1.086***
	(.152)	(.124)	(.26)	(.31)
Observations	4150	4150	4150	4150
R-squared	.528	.512	.414	.319

Standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1

Table 9: "E", "S", and "G" Transparency Component Regressions

Table 9 presents results of regressing our full model explanatory variables on each of the E-, S-, and G-pillar subcomponents of ESG transparency. Column 1 replicates the Table 4 column (4) full model regression with *lnESGTransparency* as the dependent variable. Column 2, 3, and 4 show results of regressions with *lnEnvTransparency, lnSocialTransparency,* and *lnGovTransparency* as the dependent variables, respectively. Standard errors are robust-clustered at the GP headquarters country level and reported in parentheses. The benchmark groups for the region and strategy dummies are *NorthAmerica* and *Buyout,* respectively, and the benchmark for the percentage mix of LPs is *PercInstitAssetMngrs.* All continuous explanatory variables are winsorized at the 1st and 99th percentile and all variables are defined in detail in the variable definitions appendix.

	(1)	(2)	(3)	(4)
	lnESGTransparency	lnEnvTransparency	lnSocialTransparency	lnGovTransparency
ESG Variables				
ESGRisk	.009***	.014***	.002	.01***
	(.003)	(.005)	(.003)	(.003)
ImpactPotential	.002***	.002**	.001	.002***
	(0)	(.001)	(.001)	(.001)
Region Dummies				
AfricaMiddleEast	-.362***	.174	-.099	-.407***
	(.083)	(.137)	(.103)	(.097)
CentralSouthAmerica	-.498***	.263	-.406***	-.54***
	(.119)	(.198)	(.12)	(.121)
DevelopedAsiaPacific	-.45***	.315**	-.059	-.529***
	(.11)	(.129)	(.227)	(.094)
DevelopedEurope	.414***	1.074***	.981***	.321***
	(.059)	(.095)	(.069)	(.071)
EmergingAsiaPacific	-.933***	.169**	-.624***	-.984***
	(.124)	(.082)	(.113)	(.132)
EmergingEurope	-.139	.399	.173	-.232
	(.133)	(.243)	(.251)	(.144)
GP Variables				
Age	.014***	.024***	.022***	.013***
	(.003)	(.005)	(.002)	(.004)
lnFundsRaised	.151***	.119***	.151***	.154***
	(.014)	(.022)	(.02)	(.016)
MeanVintage	-.017***	-.043***	-.04***	-.014**
	(.006)	(.007)	(.007)	(.006)
Listed	.63***	1.103***	.776***	.602***
	(.084)	(.406)	(.217)	(.074)
WomenMinority	.065*	.042	.096	.07*
	(.035)	(.07)	(.075)	(.041)
Growth	-.09	-.072	-.004	-.114
	(.065)	(.106)	(.059)	(.071)
VC	-.382***	-.278	-.19***	-.418***
	(.089)	(.167)	(.048)	(.103)
PD	-.105***	-.005	.089	-.131***
	(.034)	(.125)	(.058)	(.038)
OtherStrategies	.072	.102	.122	.063
	(.063)	(.218)	(.157)	(.056)
LP Variables				

AverageLPESGTrans	.005***	.005***	.004**	.006***
	(.002)	(.002)	(.002)	(.002)
lnAverageLPSize	.01	.001	.022***	.006
	(.007)	(.013)	(.008)	(.009)
HomeBias	-.004***	-.003**	-.002**	-.004***
	(.001)	(.001)	(.001)	(.001)
PercCorpGovPortfolios	.001	.002*	.001	.001
	(.001)	(.001)	(.001)	(.001)
PercDevelopmentOrg	.008***	.004*	.005**	.008***
	(.002)	(.002)	(.002)	(.002)
PercEndowment	.004**	-.002	.004**	.004**
	(.002)	(.003)	(.002)	(.002)
PercFinancialInst	.001	.002	.001	.001
	(.001)	(.002)	(.001)	(.001)
PercFoundation	.006***	.005***	.005***	.007***
	(.001)	(.001)	(.001)	(.001)
PercPrivatePension	.007***	.003**	.006***	.008***
	(.001)	(.001)	(.001)	(.001)
PercPublicPension	.005***	.004**	.002*	.006***
	(.001)	(.002)	(.001)	(.001)
PercWealthMngr	.007**	.005**	.008***	.007**
	(.003)	(.003)	(.003)	(.003)
_cons	1.133***	-.904***	-.022	1.358***
	(.152)	(.257)	(.261)	(.175)
Observations	4150	4150	4150	4150
R-squared	.528	.224	.301	.525

Standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1