

Integrating Impact and ESG Value Creation in Private Equity:

A Qualitative Study on Extending Financial, Governance, and Operational Engineering

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ABSTRACT

Private equity (PE) is undergoing a structural shift as sustainability considerations move from peripheral concerns to core components of value creation. PE investors now face mounting regulatory expectations, shifting limited partner demands, and heightened public scrutiny. Building on a classical PE value creation framework centered on financial, governance, and operational engineering, this thesis examines how PE, venture capital (VC), and impact-oriented investment professionals conceptualize and operationalize impact and environmental, social, and governance (ESG) strategies and expectations. Using 16 semi-structured interviews with practitioners across Europe and the United States, the study applied the Gioia methodology to generate an inductive understanding of emerging practices. Findings revealed that impact and ESG are increasingly integrated, rather than siloed from, the three classical engineering levers that enhance PE value creation. Specifically, investor practitioners used sustainability-linked, green, and blended financing instruments, and credible impact and ESG narratives to support capital access and augment financial engineering in their portfolio companies. They applied theory of change frameworks, materiality assessments, and benchmarking to inform key performance indicator selection and incentivize alignment, thus supporting exit readiness, strategic steering, and governance engineering. They also relied on ESG-enabled operational improvements, capacity building, and regulatory alignment to enhance operational engineering. Practices varied by portfolio company size and maturity, with VC investors employing more adaptive, pragmatic methods. Regulation emerged as both a catalyst and constraint, with increased reporting enhancing transparency and urgency while simultaneously creating compliance burdens perceived as detracting from ESG-related value creation. These findings underscore the growing role of impact and ESG as integrative engineering capabilities within PE value creation and offer a revised, practitioner-oriented framework for advancing both theory and practice by linking sustainability integration to disciplined, multi-capital, strategically grounded outcomes.

Keywords: private equity; venture capital; impact investing; value creation; ESG integration

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LIST OF ABBREVIATIONS

CSDDD – Corporate Sustainability Due Diligence Directive
CSRD – Corporate Sustainability Reporting Directive
CSR – Corporate Social Responsibility
DMA– Double Materiality Assessment
ESG – Environmental, Social, and Governance
ESMA – European Securities and Markets Authority
EU – European Union
GIIN – Global Impact Investing Network
GP – General Partner
GSSS / GS3 – Green, Social, Sustainability, and Sustainability-Linked (Bonds and Loans)
IPO – Initial Public Offering
KPI – Key Performance Indicator
LP – Limited Partner
PE – Private Equity
SBTi – Science Based Targets initiative
SFDR – Sustainable Finance Disclosure Regulation (including Articles 8 and 9 Funds)
SMP - Sustainability Migration Plan
TBL – Triple Bottom Line
UN PRI – United Nations Principles for Responsible Investment
UN SDG – Sustainable Development Goals
VC – Venture Capital

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1. INTRODUCTION

Private equity (PE) is entering a period of structural transformation as environmental, social, and governance (ESG) considerations shift from peripheral concerns to central components of value creation. Historically, PE value creation revolved around financial, governance, and operational engineering (Kaplan & Strömberg, 2009). However, the last decade has introduced new sustainability demands driven by regulation, shifting investor expectations, and evidence linking ESG performance to financial outcomes.

In the European Union (EU), regulations, such as the Sustainable Finance Disclosure Regulation (SFDR), Corporate Sustainability Reporting Directive (CSRD), EU Taxonomy, and other emerging due diligence mandates, have accelerated ESG and impact integration across the investment cycle. Global frameworks, including the United Nations Principles for Responsible Investment (UN PRI), the Science Based Targets initiative (SBTi), and the ESG Data Convergence Initiative (EDCI), have reinforced this momentum (Ecovadis, 2022). The Chartered Financial Analyst (CFA) Institute (2024a; 2024b) highlights that private market funds increasingly align capital flows with ESG, with limited partners (LPs) demanding credible sustainability strategies. PricewaterhouseCoopers (2021, 2023) and Ecovadis (2022) show that ESG now influences fundraising, diligence, operational value creation, and exit strategy. In parallel, the number of investors and assets under management (AUM) in impact investing has grown significantly. Hand et al. of the Global Impact Investing Network (2025) estimates that more than 3,907 organizations currently manage \$1.57 trillion USD in impact investing AUM worldwide, with private equity and debt representing the most prominent asset classes. As Foroughi (2022) of the Stanford Social Innovation Review clarifies, “impact investing is a strategy,” whereas “ESG is a framework,” respectively the ‘what’ and the ‘how’ (paras. 7-9).

These developments demonstrate significant momentum in private markets and signal a shift toward impact and ESG as structural features of modern PE. This thesis examines how PE owners can enhance value creation by integrating impact and ESG engineering within the established financial, governance, and operational levers. The purpose is to augment current understanding and provide a practical, conceptually grounded framework that helps investors recognize and operationalize the full range of impact- and ESG-related value creation opportunities available to them. In doing so, the thesis aims to support a more holistic approach to

PE investment practice, one that reflects the blended nature of financial, environmental, and social value creation across the investment cycle.

1.1 Research Questions

The following research questions guided this study:

1. How do PE professionals conceptualize impact and ESG?
2. How are impact and ESG operationalized across sourcing, diligence, ownership, and exit?
3. How can Kaplan and Strömberg's (2009) value creation model for private equity investors be expanded to include impact and ESG?
4. What barriers and enablers shape impact and ESG adoption?

Rather than seeking to establish the direct financial effects of impact and ESG integration, this thesis examines emerging standards, practices, and toolkits through which ESG and impact considerations are increasingly augmenting PE investor value creation processes. While research examining the financial effects of such integration is beginning to develop, the availability of financial and ESG data in private markets remains a significant challenge. Accordingly, the analysis centers on conceptual synthesis and framework development, offering guidance for how the field continues to evolve.

1.2 Thesis Structure

This thesis is organized into six sections that build a coherent narrative from context to contribution. Section 1 introduced the research problem, outlined the growing importance of impact and ESG in PE, and presented the study's purpose and research questions. Section 2 provides a comprehensive literature review, situating ESG and impact within sustainable finance, examining regulatory and market developments, and outlining the theoretical foundations that inform the study. Section 3 details the study's qualitative interpretive approach, including its data collection procedures and use of the Gioia analytical methodology. Section 4 presents the findings derived from the inductive analysis, which have been organized and integrated into an expanded value creation model. Section 5 discusses the implications of these findings in relation to existing scholarship and practitioner insights, highlighting areas of convergence and divergence, and synthesizing key contributions and practical implications for PE investors seeking to integrate

impact and ESG into value creation processes. Finally, Section 6 concludes the thesis by summarizing the overall takeaways and outlining future research opportunities.

2. LITERATURE REVIEW

The purpose of this literature review is to situate impact and ESG integration within the broader evolution of sustainable finance and to establish the conceptual foundations needed to reinterpret PE value creation. As the field undergoes rapid transformation driven by regulatory shifts, investor expectations, methodological debates, and political controversy, the academic and practitioner communities continue to negotiate what constitutes credible ESG practice, meaningful impact, and value creation in private markets. Given this evolving landscape, this review draws on both academic literature and practitioner research to illuminate how ESG and impact investing have developed across public and private markets, how PE's traditional engineering levers have evolved, and how emerging frameworks seek to bridge financial and non-financial value.

While peer-reviewed scholarship is used as the foundational body of reference in this thesis, practitioner research is also incorporated to provide essential context in this rapidly evolving field. Practitioner research refers to knowledge produced outside academia by organizations that work directly in the field, such as consulting firms, industry associations, think tanks, and companies. These sources include market reports, industry analyses, white papers, benchmarks, and guidance documents.

To accomplish the goals of this review, the section proceeds in accordance with the structure outlined in Sections 2.1-2.7 of the table of contents. First, it positions impact and ESG within the broader domain of sustainable finance, clarifying distinctions and points of overlap across investment strategies (Section 2.1, including ESG-driven investing and engagement in public markets and 2.1.2 on impact investing in private markets). Second, Section 2.2 outlines the theoretical foundations of Kaplan and Strömberg's (2009) PE value creation model, which provides the framing for understanding how investors can extend classical PE engineering to incorporate impact and ESG. Third, Section 2.3 further highlights how ESG has emerged as a value creation logic in PE. Sections 2.4 through 2.6 analyze how the classical PE engineering levers (financial, governance, and operational) outlined in the theoretical foundations are augmented through impact and ESG engineering. This includes financial optimization through lender rate reduction and ESG-linked borrowing (2.4), governance mechanisms such as ESG-

aligned strategic expectations and KPI setting (2.5), and operational levers such as capacity building and ESG-enabled efficiency (2.6). Finally, Section 2.7 synthesizes these developments to outline the expanded conceptual model that informs the purpose of the empirical analysis presented in Section 4. This integrated review establishes the intellectual grounding for the study's methodological approach and its contributions to the evolving discourse on PE value creation.

2.1 Positioning Impact and ESG in Sustainable Finance

Sustainable finance has expanded rapidly in recent years, bringing greater conceptual clarity to how investors incorporate environmental and social considerations into capital allocation. Within this evolving landscape, understanding how impact and ESG engineering fit into the broader spectrum of sustainable investment approaches is essential. According to Cole et al. (2022), sustainable investing encompasses practices that, in addition to financial returns, incorporate non-financial factors into portfolio design, investment decision-making, investment management, and ultimately, value creation. Non-financial factors include both explicit ESG and impact considerations. Additionally, the authors state that “the promise of ‘doing well by doing good’ is seductive...and the momentum of the industry is undeniable and has stimulated a dynamic dialogue about the role of capital in supporting society” (Cole et al., 2022, p. 1). Together, these insights underscore the growing need to clarify how various sustainable investment approaches differ in intent, practice, and expected outcomes.

A useful, though continuously evolving way to distinguish between sustainable investment approaches is to differentiate between ESG-driven strategies, which are primarily in public markets, and impact-driven strategies, which tend to be concentrated in private markets (Cole et al., 2022, p. 2). The authors added a nuance to this distinction by explaining that “factoring ESG in private market investment is becoming increasingly important from a risk management and value perspective” (Cole et al., 2022, p. 2). Cole et al. (2022) further outlined how sustainable investing spans distinct approaches across public and private markets, with different investor participants and ways of measuring and managing impact. For example, public market investors include large institutional investors (e.g., pension funds and insurance companies) and a growing base of retail investors. By contrast, private market investors include high-net-worth individuals, family offices, foundations, and an expanding group of institutional investors.

Cole et al. (2022) also detailed five main investment strategies: (a) negative screening, (b) positive (i.e., best-in-class) screening, (c) ESG integration, (d) sustainable-oriented, thematic allocations, and (e) engagement activities. The impact measurement and management practices associated with these strategies typically included ESG data and ratings from third-party providers, standardized metrics, and case examples from reporting. The primary approaches were twofold: either focusing on sustainably themed investing (e.g., financial inclusion) or impact investing, often guided by explicit social or environmental objectives. Impact measurement and management were found to be more variable, as practices were shaped by the investor or the fund's thematic ESG focus. There was also a focus on output tracking and an increasing effort to standardize measurement metrics through proprietary approaches or emerging standardization tools.

Relating the size of these respective markets, at the time of Cole et al.'s publication (2022), the private market for ESG- and impact-oriented investments remained in the hundreds of billions (USD), which made it several times smaller than the public market for ESG-driven engagement-oriented investing that was measured in the trillions (USD). In relation to the impact specific investment market, the Global Impact Investing Network (GIIN), a leading industry body in this space, "estimates that over 3,907 organizations currently manage \$1.571 trillion USD in impact investing AUM worldwide" (Hand et al., 2024, p. 3). In the latest 2025 State of the Market report, drawing on a surveyed sample of 359 investors representing \$218.3 billion USD in impact AUM, Hand et al. of GIIN found that private equity accounted for 41% of the sample's AUM, followed by private debt (21%) and private real assets (14%). Public equity and public debt represented 12% and 9% of AUM, respectively, indicating that impact allocations were overwhelmingly concentrated in private-market instruments (Hand et al., 2025).

2.1.1 ESG-Driven Investing and Engagement in Public Markets

Empirical research examining the financial implications of ESG and impact-related practices has grown substantially, yet the evidence base remains fragmented and, at times, contradictory. These inconsistencies stem largely from divergent measurement approaches, heterogeneous data sources, and varying assumptions about how ESG-related factors influence firm performance and investor behavior. As a result, scholars continue to debate whether ESG acts as a value driver, a risk mitigator, a source of market mispricing, or a costly constraint on traditional investment objectives. This subsection synthesizes key contributions in this debate by outlining

the theoretical and empirical foundations that shape current understandings of how ESG considerations interact with firm value, market pricing, and investor impact, beginning with the work of Cornell and Damodaran (2020) and followed by evidence from Kölbel et al. (2020).

Cornell and Damodaran (2020) outlined a framework for connecting the implications of ESG and to firm value, addressing questions regarding (a) whether ESG affects a firm's operations and value, how markets price the consequences of ESG, and (b) whether investors make excess returns on ESG stocks. Ultimately, the authors argued that ESG enthusiasm at the time outpaced the robustness of its evidence base, stating that the “notion that adding an ESG constraint to investing increases expected returns is counterintuitive. After all, a constrained optimum can, at best, match an unconstrained one, and most of the time, the constraint will create a cost” (p. 19). Continuing this notion at a theoretical level, the authors referenced the Fama and French tradition of asset-pricing models, noting that the expectation that investors can adopt ESG constraints and simultaneously earn higher returns is unlikely without assuming market mispricing. According to Cornell and Damodaran (2020), empirical evidence reflects this ambiguity, with studies showing a spectrum of mixed results. While the authors acknowledged that some firms may experience operational or reputational gains from more responsible practices, the prevailing empirical evidence indicated that better ESG firms tend to face lower discount rates, and thus lower expected returns. Conversely, Cornell and Damodaran (2020) found that the evidence is more compelling that firms with poorer ESG characteristics are penalized through higher risk and discount rates, as well as a greater likelihood of costly shocks.

While Cornell and Damodaran (2020) focused primarily on ESG's implications for firm value and market pricing, a complementary stream of research has examined whether investor behavior can generate tangible impact beyond financial returns. Kölbel et al. (2020) advanced this discussion by identifying and evaluating the mechanisms through which investors may influence companies' ESG practices. For example, Kölbel et al. (2020) found that the strongest empirically supported impact mechanism was shareholder engagement. The authors distinguished between three impact mechanisms: shareholder engagement, capital allocation, and indirect impacts where engagement was defined as the actions “intended to change companies' ESG practices” (p. 558), allocation constituted investors buying or selling assets as well as exiting, and indirect impacts were framed as “stigmatization, endorsement, benchmarking, and demonstration” (p. 558).

Engagement prevailed as the most significant mechanism, with capital allocation effects exhibiting partial evidence, and indirect impacts showing little empirical support.

2.1.2 Impact Investing in Private Markets and Regulatory Considerations

While impact is more commonly associated with private markets (including PE, VC, and private debt), ESG has become increasingly prominent across private market investment from both risk-management and value perspectives (Cole et al., 2022, p. 2). While some scholars and practitioners make a clear differentiation between impact and ESG, others use these terms synonymously. Drawing from interviews with 65 VC experts, Lange and Banadaki (2024) identified a lack of a unified definition or standardized framework for ESG among investors and startups as one of four main barriers facing firms.

Many studies pointed to environment, social, and governance (ESG) metrics “as a proxy for company impact” (Kölbel et al., 2022, p. 555). Kölbel et al. distinguish between investor impact as “the change that investor activities achieve in company impact” and company impact as “the change that company activities achieve in social and environmental parameters” (2022, p. 555). Kölbel et al. (2022) connect impact causality back to the concept of “additionality” where there needs to be a “sense that the [impact] change would not have occurred in the absence of the activity” (p. 556). Proving this counterfactual can be quite a challenge.

This distinction between “investor impact” and “company impact” parallels the European Securities and Markets Authority’s (ESMA) published Final Report: Guidelines on Funds’ Names Using ESG or Sustainability-Related Terms, which differentiated between “owning impact” and “creating impact” (2024). From a regulatory perspective, Europe is relatively more advanced with the SFDR, EU Taxonomy, CSRD, and other proposed directives such as the CSDDD (Ecovadis, 2022). Additionally, global standard-setting frameworks, such as the PRI, UN Global Compact, SBTi, and EDCI, shape LP and GP expectations (Ecovadis, 2022).

Recent regulatory developments, such as the proposed SFDR 2.0 (European Commission, 2025), are moving toward requiring impact funds to articulate and substantiate a theory of change. The United Kingdom Financial Conduct Authority (2025) through its “Sustainability Impact” label mandates a clear theory of change and associated measurable indicators. The Swiss Financial Market Supervisory Authority (2021) requires that any product claiming impact must provide supporting evidence and, where possible, corresponding metrics. While ESMA’s guidelines state

funds using the term “impact” should demonstrate an intention to generate positive, measurable social and environmental outcomes (2024), the EU’s SFDR currently has no explicit reference to impact beyond the principle of “do no significant harm” (European Parliament and Council of the European Union, 2019).

2.2 Theoretical Foundation

Private equity research traditionally emphasizes financial performance, governance structures, and the mechanisms through which PE sponsors influence portfolio company value. However, the rise of impact investing and sustainability-oriented private markets has expanded the conceptual basis for understanding, assessing, and delivering value across the investment lifecycle (Adams, 2020; CFA Institute, 2024a; 2024b). To capture both the traditional aspects of PE value creation and the multidimensional value orientation central to impact investing, this study drew upon Kaplan and Strömberg’s (2009) PE value creation model.

Kaplan and Strömberg (2009) proposed that PE owners add value through three forms of “engineering”: financial, governance, and operational. Financial engineering refers to optimizing capital structures, lowering financing costs, and improving cash-flow discipline. Governance engineering refers to the mechanisms through which PE owners exert active oversight, including board control, managerial incentive alignment, and strategic monitoring. Operational engineering refers to the deployment of non-financial expertise, management tools, and performance-improvement capabilities aimed at strengthening efficiency and growth as well as executing on the agreed upon strategic plan.

By optimizing capital structures, exercising active ownership and incentive alignment, and using various specialized operational capabilities, Kaplan and Strömberg (2009) shared that PE investors “improve firm operations and create economic value” (p. 130), with “strong” empirical evidence that “private equity activity creates economic value on average” (p. 143). In this thesis, Kaplan’s and Strömberg’s model provided the foundational baseline for understanding PE value creation, to which emerging impact- and ESG-oriented practices were added and integrated.

2.3 Emergence of Impact and ESG Engineering in Private Equity Value Creation

Within private equity, ESG has evolved from a peripheral concern to an integral part of investment logic. Zaccone and Pedrini (2020) identified two primary approaches to ESG

integration in PE: risk management and value creation. At the industry level, ESG norms have increasingly shape access to capital. For example, Rubanovici (2020) found that ESG programs are becoming increasingly mandatory, with ESG conditions attached to access to capital. The authors also pointed to the growing number of signatories joining PRI, which has fueled the extension of ESG-related requirements.

Value creation models and paradigms in PE have undergone a marked transformation over the past several decades. Indahl and Jacobsen (2021) describe this evolution as starting in the 1980s with PE 1.0, where “firms created value primarily through financial engineering” (p. 34) in the first wave of leveraged buyouts. This typically involved “the use of high leverage in combination with large equity stakes to motivate managers charged mainly with taking costs out of mature businesses” (p. 34).

Private equity 2.0 emerged in the 1990s when PE investors “focused heavily on increasing operating efficiencies, accomplished often by bringing in proven CEOs from successful public companies,” (Indahl & Jacobsen, 2021, p. 34), which aligns with Kaplan and Strömberg’s (2009) operational engineering. With increased competition from strategic and financial buyers in the 2000s, PE 3.0 saw firms building “large financial institutions that continued to function as value-adding buyers ... by expanding into different asset classes and developing new areas of expertise” (Indahl & Jacobsen, 2021, p. 34). Arguably, this phase aligns with the strategic considerations outlined by Kaplan and Strömberg (2009) in their governance engineering, as well as with their implementation of operational engineering.

Building on this historical progression of PE’s evolving value-creation toolkit, Indahl and Jacobsen (2021) suggested that the industry has entered a new phase in which sustainability considerations are no longer peripheral but strategically embedded. The authors state that “a growing number of PE firms have been adding to their existing capabilities the effective management of ‘externalities’ and environmental, social, and governance (ESG) factors” (p. 34). Indahl and Jacobsen, who founded and work for Summa Equity, a thematic investment firm, used their company as a case example arguing that when “ESG principles and practices [are turned] into a core competence, [they become] a source of competitive advantage that has enabled the firm to distinguish itself from its competitors and, in so doing, to bring about significant increases in efficiency and long-run value” (2021, p. 34). This approach, encapsulated in what the authors describe as PE 4.0, reframes the generation of ESG impact as a core capability, which in this thesis

is characterized as impact and ESG engineering. In this sense, this evolution both aligns with and extends the foundational value creation model proposed by Kaplan and Strömberg (2009). The following section explores the levers of PE value creation with respect to impact and ESG.

2.4 Financial Engineering

In private equity, financial engineering has conventionally focused on how investors use their expertise to help their portfolio companies optimize capital structures by managing leverage more effectively and securing more favorable debt terms through lender relationships (Kaplan & Strömberg, 2009). However, recent developments in sustainable finance have demonstrated that ESG performance can materially affect corporate financing conditions, suggesting that ESG- and impact-oriented mechanisms provide a natural extension of the financial engineering lever. A growing body of evidence indicates that stronger ESG performance is associated with reduced financing frictions and enhanced capital access, particularly through lower perceived risk and improved liquidity (Sassen et al., 2021). As this section illustrates, academic research has shown that, at the portfolio company level, ESG performance can improve creditworthiness, reduce downside risk, and expand access to favorable green and sustainability-linked financing instruments (Eliwa et al., 2021; Chen et al., 2023; He et al., 2023; Mishra et al., 2023; Marín-Rodríguez et al., 2023). Collectively, these developments suggest that impact and ESG considerations may enhance traditional financial engineering, raising questions about how PE professionals understand and optimize these mechanisms.

2.4.1 Reducing Borrowing Costs through Facilitating ESG Disclosure

Eliwa et al.'s (2021) study examined how lending institutions in 15 EU countries incorporate ESG performance and disclosure. They distinguished “between ESG performance that is used to indicate an effective commitment to ESG strategies, and ESG disclosure that represents an effort to construct an image of commitment designed to positively influence stakeholders’ perceptions” (Eliwa et al., 2021, p. 1). Using a sample of 6,018 firm-year observations, the authors concluded that “firms can benefit from increasing the level of ESG performance and disclosure, which in turn are translated into a lower cost of capital charged by lending institutions” (p. 17). Interestingly, the study also found that “not only does ESG disclosure have an equal impact on the cost of debt but also acts as a substitute for ESG performance (Eliwa et al., 2021, p. 17).

Eliwa et al.'s (2021) findings sit within a broader literature in which studies have yielded mixed results regarding the relationship between ESG performance and firms' cost of debt. On the one hand, the authors cited research that provided similar evidence of an inverse relationship between ESG performance and firms' cost of debt. On the other hand, Eliwa et al. (2021) also noted studies such as those conducted by Hoepner et al. (2016), which found an insignificant or even a positive relationship. Eliwa et al. (2021) addressed this ambiguity, stating that, at the conceptual level, the connection between ESG disclosure and the cost of debt is stronger than that between ESG performance and the cost of debt (p. 5). They point to the fact that with ESG disclosure, companies provide more information, including risk mitigation frameworks that clarify relevant ESG risk and mitigation measures, which is directly relevant to lending institutions (Eliwa et al., 2021, p. 5).

Along similar lines, Chen et al. (2023) shared that “companies benefit from the sharing of ESG data by improving their brand image, which attracts funding [and] lowers financing costs” (p. 1). The authors framed firm risk as “the potential for a loss in firm value as a result of uncertainty surrounding potential future results or events” and explained how “[a]n excellent ESG information disclosure provides corporate management and external investors with more information and serves as a crucial resource for additional investment as it increases their confidence in the long-term sustainable growth of the companies” (Chen et al., 2023, p. 2). For PE owners, these findings underscore that ESG disclosure itself, and not just ESG performance, can materially reduce borrowing costs. A practical avenue for investors to engineer financing advantages for their portfolio companies, therefore, is to strengthen ESG reporting, particularly around risk mitigation frameworks, to reduce lender uncertainty. There is also meaningful potential to help companies at earlier stages of ESG reporting maturity to prioritize disclosure areas and quality in ways that can secure more favorable borrowing terms.

Eliwa et al. (2021) also noted that comprehensive ESG disclosure reduced information asymmetry between the borrowing company and the lending institution, thereby lowering the cost of debt (p. 5). He et al. (2023) arrived at a similar conclusion, noting that “positive ESG performance can reduce firm risk by alleviating corporate financing constraints” (2023, p. 6). Additionally, the authors reasoned that “positive ESG performance can alleviate financing constraints by reducing information asymmetry and expanding financing channels” (He et al., 2023, p. 2). When comparing the effect of ESG performance and disclosure on the cost of debt

across EU countries, Eliwa et al. (2021) found that the stakeholder orientation of the countries had a significant effect. The authors' evidence suggested "that the impact of ESG practices on the cost of debt is more dominant in stakeholder-oriented countries (where community is more prevalent)" (p. 17). For example, the results highlighted that the cost of debt is lower for firms in countries such as Denmark, which have greater stakeholder orientation, than for firms in countries such as Greece, which have less (Eliwa et al., 2021, p. 11).

Such findings demonstrate that awareness of the stakeholder orientation of countries can be relevant for lending outcomes. By accounting for these differences, PE investors can work to optimize the financing options for their portfolio companies by considering the institutional context of lenders and borrowing jurisdictions. Private equity investors can assess which of their operational markets are more stakeholder oriented and proactively build relationships with lenders in these markets who are more likely to offer lower borrowing rates to their portfolio companies that offer sufficient ESG performance and disclosure. However, evidence remains limited on whether, and how, PE firms use awareness of stakeholder-oriented institutional contexts when helping portfolio companies secure more advantageous financing terms.

2.4.2 Enabling Access and Navigating Sustainability-Linked Financing Instruments

The International Capital Market Association (ICMA) provides the leading principles and guidelines for green, social, sustainability, and sustainability-linked ("GSSS" or "GS3") bonds and loans. ICMA distinguishes that proceeds of Green Bonds, Social Bonds, and Sustainability Bonds are dedicated to financing eligible projects whereas Sustainability-Linked Bonds proceeds "are primarily for the purposes of an issuer in pursuit of identified KPIs" (2025, p. 9). GSSS financing instruments have emerged as important instruments in the broader evolution of sustainable finance and provide new opportunities for PE-owned portfolio companies to secure capital at potentially lower borrowing costs while strengthening market credibility around environmental and social objectives. Various published practitioner reports also encouraged the use of sustainability financing as a form of value creation.

Mishra et al. (2023) highlighted the extraordinary growth of the GSSS bonds, noting that global issuance has "grown by an average annual rate of 80%, meaning that the market size has almost doubled from one year to the next since 2014" (p. 127). According to the World Bank, GSS bond issuances reached \$5.7 trillion, where green bonds held the largest share, followed by

sustainability, social and then sustainable-linked bonds (2024, p. 1). Mishra et al. (2023) also highlighted “that companies are using the issuance of GS3 as a signaling mechanism to the financial market [and] ... are also refinancing their existing project which is aligned to ICMA’s GS3 principles resulting in a lower cost of capital due to the presence of ‘greenium’ in GS3 market” (p. 139). With respect to lowering borrowing costs, Pohl et al. (2023) referenced -that sustainability-linked bonds (SLBs) lead with an average 29.2 basis point cost of capital savings compared to their conventional bond counterparts (p. 4). This compares to sustainability-linked loans (SLLs), which Pohl et al. (2023) found had 9.5 basis points lower cost of capital compared to their conventional loan counterparts, attributing this difference to the fact that SLBs often include a coupon increase in the event that sustainability targets are not met whereas SLLs more often allow for a spread reduction that depends on the degree to which sustainability targets are met (p. 4). There is limited research on cost of capital savings with social and sustainability bonds, and evidence on green bonds ranges considerably from negligible effects (Flammer, 2021) or even negative premiums to cost of capital reductions of up to 18.5 basis points (Pohl et al.). For PE investors, there is an opportunity to prepare their portfolio companies to navigate GSSS bond and loan offerings and find issuers that provide a greater amount of basis point savings.

Research also shows that the signaling effect of GSSS bonds can complement a reduction in borrowing costs. Marín-Rodríguez et al. (2023) found that green bond issuance announcements can increase public-company stock prices, indicating that some investors see these issuances as a positive sign of sustainability commitment (p. 4). This suggests that PE investors can work to maximize the signaling power of their portfolio companies’ GSSS bonds, especially when nearing exit or positioning to potential sellers.

Eligibility for GSSS bonds requires far more than a marketing label, and often demands extensive verification, disclosure frameworks, and alignment with evolving standards. Mishra et al. (2023) explained that “external reviews from an independent party confirm alignment with International Capital Market Association’s guidelines” and note that external review can consist of assurance, second party opinion (SPO), green bond ratings, climate bonds verification (pp. 137-138). The authors emphasized that SPOs help build investor confidence and enhance transaction credibility (Mishra et al., 2023, p. 138). In “The Limits of Green Finance,” Gilchrist et al. (2021) highlighted “difficulties in the analysis of green finance including the lack of consistency in assessing corporate greenness, the ambiguous definition of corporate greenness, and the

unavailability of data” (p. 9). Marín-Rodríguez et al. (2023) warned of “the potential for greenwashing, where issuers provide misleading information about their environmental commitment to gain a better public reputation and attract sustainability-oriented investors” (p. 4). Marín-Rodríguez et al. (2023) also cautioned that “[a]nother challenge is the perception of higher costs for issuers, as green bonds may require additional reporting and disclosure requirements” (p. 4). For PE investors, these dynamics present an opportunity to prepare portfolio companies for GSSS issuance, identify instruments that offer the greatest basis point savings, and leverage the signaling value of such transactions, particularly in the context of exit positioning. Given the complexity of verification requirements and disclosure expectations, investors also play an important role in assessing which GSSS instruments are feasible for their portfolio companies, the extent of ESG upgrading required, and whether the expected financial benefits justify the internal effort. While the literature clearly demonstrates the expansion and financial relevance of the GSSS bond and loan market, less is known about the extent to which PE investors actively facilitate these issuances for their portfolio companies.

2.5 Governance Engineering

In private equity, governance engineering traditionally refers to how investors exert control and influence over portfolio companies through board composition, active ownership, and managerial incentive structures, with the aim of steering strategy and monitoring performance more intensively than in public markets (Kaplan & Strömberg, 2009). Emerging academic and practitioner work suggests that integrating impact and ESG into this governance architecture requires more than adding a few sustainability metrics; it entails shaping strategic mindsets, clarifying dual financial and stakeholder objectives, and developing governance systems that position impact and ESG as drivers of commercial value rather than constraints. This involves establishing ESG-aligned expectations with management teams, navigating agency complexities when pursuing multiple objectives, and responding to institutional logics and pressures that increasingly demand credible ESG strategies and disclosure. It also extends classical governance tools, such as road mapping, KPI setting, performance management, and incentive design, to encourage impact and ESG outcomes, with implications for exit readiness and buyer expectations. Together, these strands of literature indicate that governance engineering is a critical channel through which PE investors can embed impact and ESG into value creation processes, while also

raising questions about how investors in practice interpret and act on this expanded mandate, resolve tensions between shareholder and stakeholder goals, and operationalize impact- and ESG-related governance across their portfolio.

2.5.1 Establishing ESG-Aligned Mindsets and Managerial Expectations

A body of both practitioner and academic research underscores that effective ESG governance must begin by establishing cultural expectations, managerial mindsets, and institutional logics that position sustainability as part of commercial value creation rather than being in tension with it. Practitioner evidence shows that PE owners increasingly work to shape expectations and establish a shared mindset with portfolio companies. Based on a survey of 120 PE leaders, Jais and Albert (2022) of Accenture reported the importance of PE owners facilitating this mindset shift during ownership and how value creation depends on aligning company leadership around a “dual-value strategy”:

In the holding period, it is critical to bring in managers who understand the dual-value strategy. These need to be people who can lead with purpose and who have the skills to help turn around the portfolio business...As Cristina David, director of Finance & Investor Management at 21 Invest, explains: “It can be challenging at the portfolio level to ‘change the engine while the plane flies.’ For example, when our firm acquired a packaging company, the company had not significantly developed sustainable packaging.” The key was to make a strong business case, convincing management teams of the importance of ESG to reach new clients and its long-term value (p. 17).

This sentiment is echoed across PE guidance. For example, EY’s Jordan et al. (2024) coined having an “ESG on” mindset explaining, “[a]n integrated ESG strategy ensures that deal teams, operating partners and portfolio management maintain an ‘ESG on’ mindset from day one, pursuing only those initiatives that will positively impact sales, profits and financing to improve investee valuations and, ultimately, investor returns strategically” (para. 11). In a survey of 28 PE, VC, and sovereign wealth funds across Southeast Asia and India, MacGregor et al. (2024) from SVCA & A&M, found that 36% of investors surveyed identified “resistance from portfolio companies” as a key challenge in implementing ESG initiatives (p. 4). They contextualized this challenge from their survey research, sharing that “[m]anagement teams often have limited awareness of the value created by incorporating ESG drivers at the outset of the investment period. In a situation of limited

management bandwidth available, ESG drivers are not perceived as a top priority for driving growth” (MacGregor et al., 2024, p. 4). From global asset manager IFM Investors’ report, *Aligning the Heart, The Head, and The Feet*, Odgers and Han (2022) shared that in their experience in private equity, “the maxim that ‘culture eats strategy for breakfast’ is true... A culture underpinned by a clear purpose that nurtures employee engagement and performance can make a huge contribution to unlocking value and delivering both financial and non-financial impact” (p. 3).

These practitioner insights make it clear that effective governance engineering in private equity starts with shaping mindsets and expectations among portfolio company leadership teams to implement impact- and ESG-integrated value creation strategies. For PE investors, these dynamics can be best understood through several strands of academic literature, including agency theory, dual objectives, shareholder and stakeholder theory, and institutional logics.

The Agency Complexity of Pursuing Dual Shareholder and Stakeholder Objectives. Integrating impact and ESG into value creation strategies requires navigating tensions introduced when firms pursue multiple objectives beyond financial returns. Geczy et al. framed that the “addition of a social-benefit goal alongside the goal of financial performance sets impact investing apart from conventional private equity (PE) or venture capital (VC) investing... This dual objective introduces a new dimension to the contracting problem for funds, investors, and portfolio companies” (2021, pp. 697-698). Geczy et al. further explained that private investment markets already have layered principal-agent issues “between investors and their funds, where investors (LPs) delegate capital to fund managers (GPs) to invest in deal opportunities...[and a] second agency problem arises between the funds and their portfolio companies (PCs), where the GPs are the principals providing capital to entrepreneurs” (2021, pp. 697-698).

Crifo and Forget (2015) also positioned ESG adoption among managerial leaders with the agency framework, “by letting executives exercise their discretion in such a way as to favor the interests of stakeholders other than shareholders, CSR strategies are driven by incentives in the firm’s agency relationship with its stakeholders, based on internal (delegated or organizational) pressure from shareholders, employees and directors” (p. 113). Jatmiko et al. (2025) further provided the foreground between fundamental shareholder and stakeholder perspectives and debates, stating that shareholder theory “views ESG as non- revenue- generating, leading to suboptimal firm performance and a lower firm value...[i]n contrast, stakeholder theory [argues

that] firms maintain a social contract with non- shareholder stakeholders, including society and the environment, to gain societal legitimacy” (p. 6184).

Jatmiko et al. (2025) instead argued that “By addressing the interests of diverse stakeholders, firms can develop unique internal resources, leading to sustained competitive advantage and higher firm value, consistent with the resource- based view...” (p. 6184). The authors clarified that these benefits depend on understanding the “differing motivations among stakeholders involved in corporate ESG initiatives, particularly between investors and managers” (p. 6185) and highlighted:

As Starks [(2023)]...rightly puts it, “much of the confusion is due to differences in whether motivation arises from value or values, that is, from regarding the ESG qualities of an investment as important to its financial value or, as consistent with one's values.” In this context, the standard agency framework and stakeholder theory commonly used in previous studies offer only “a simplistic view” (DesJardine et al. 2023, 10) when analyzing motivations that extend beyond purely financial considerations. (Jatmiko et al., 2025, p. 6185)

Taken together, this literature suggests that PE investors must recognize the agency complexity inherent in the dual objectives and support company managers in navigating an extended agency relationship that includes both shareholder and broader stakeholder groups as a part of impact and ESG strategies aimed at value creation.

Institutional Pressures, Competing Logics, and the Foundations of ESG Strategy.

Jatmiko et al. (2025) applied “institutional logics theory to explain the conflicting empirical evidence on the ESG–firm performance nexus” and consider if “institutional logics theory [can] enhance our understanding of the relationship between ESG performance and firm value” (p. 6185). Institutional logics theory examines how a broader belief system or culture shape the behavior of the individuals and companies within the institutional context. Jatmiko et al. (2025) explained how ESG adoption is shaped by tensions between “market logic” and “community logic,” further detailing “market logic prioritizes financial efficiency as the primary objective of business strategies, community logic emphasizes equity and a holistic goal to maximize the integrated value across finance, society, and the environment” (p. 6185).

Lee et al. (2024) built on this foundation by sharing how institutional pressures can shape strategic responses to ESG outcomes. They argued that organizational behavior is strongly influenced by institutional environments, not solely economic incentives. Lee et al.'s research further advanced “the application of institutional theory by explicitly incorporating the concept of ESGS [environmental, social, and governance strategy] as a mediating factor, providing a nuanced understanding of how firms convert institutional pressures into TBLP [triple bottom line performance] improvements” (2024, p. 5248).

Private equity investors can draw on the insight from Jatmiko et al. (2025) by recognizing that their portfolio companies may be struggling to operate within competing institutional logics, where dominant market logic may initially conflict with emerging community or ESG logics. By cultivating organizational cultures that legitimize ESG as strategically valuable, PE owners can work to bridge these tensions. Through the empirical research of Lee et al (2024), PE owners can understand the importance of developing coherent ESG strategies, which can be scoped as a foundational part of the proposed “impact and ESG engineering” dimension within the existing governance engineering framework, thereby positioning impact and ESG as credible and institutionally supported drivers of long-term, multi-stakeholder value creation. Note that later in the operational engineering section of the literature review, the thesis will incorporate the managerial implications highlighted by Lee et al (2024), particularly how training and digitizing ESG capabilities can strengthen firms’ ability to respond to institutional pressures.

Despite the conceptual foundations offered by agency theory, stakeholder or shareholder debates, and institutional logics, the literature provided limited clarity on how investors operationalize these dynamics when shaping ESG strategy, managerial expectations and board-level governance processes in practice.

2.5.2 Structuring ESG Strategy: Road Mapping, KPI Setting, and Performance Management

Kaplan and Strömberg’s (2009) account of governance engineering in PE specifically revolves around “the way that private equity investors control the boards of their portfolio companies and are more actively involved in governance than public company boards. Private equity portfolio company boards are smaller than comparable public company boards and meet more frequently...[and] do not hesitate to replace poorly performing management” (pp. 131-132). The dimensions of traditional governance engineering often extend to PE investors taking active

ownership roles by jointly developing business plans with the portfolio company managers and monitoring progress through detailed reporting and frequent KPI reviews. Integrating impact and ESG engineering into these governance dimensions largely builds on this existing architecture, extending these mechanisms to impact- and ESG-related value creation plans, related KPI setting, and performance management.

An initial implication of this extension is that creating an impact and ESG roadmap becomes integrated into the value creation plan formulated by the PE owners and management. MacGregor et al. (2024) argued that when developing the integrated company improvement plan that focus should be “on 2-3 relevant ESG levers that together with the operating levers will drive financial performance” (p. 6) and with this recognizing that a one-size-fits-all approach does not work. This method helps portfolio companies prioritize and follow through on the selected initiatives and effectively maximize the impact of ESG from the outset.

Benchmarking and materiality assessments are also central to this integrated road-mapping process. MacGregor et al. (2024) highlighted the importance of how each industry has unique ESG material topics and that keeping close to material levers is crucial for value creation. A report from Ecovadis (2022) emphasized working closely with management from the portfolio companies to build a baseline that references both peers and prevailing standards on key sustainability themes. When surveying 23 top PE investors, Zaccone and Pedrini (2020) found that more than 60 percent employed structured instruments, such as checklists and questionnaires, to evaluate how portfolio companies manage business risk, create value, and ensure compliance with ESG-related laws and standards.

Importantly, impact and ESG consideration and road mapping are no longer being confined to downside risk mitigation and instead should also target commercial upside. MacGregor et al. (2024) documented that many investors work to drive strategies with portfolio companies to create new revenue streams by providing sustainable products and services, and share an example of a South Asian apparel manufacturer that started creating products made from recycled ocean plastic, and as a part of its business plan will target 50% of its revenue to come from sustainable products by a determined date. Along these lines, they suggested investors track applicable portfolio companies' sustainable products sales as a share of total sales, contribution margins, repeat purchase rates, customer survey scores, and capex for new product development. Additionally, Jordan et al. (2024) of EY emphasized that “[i]nvestors recognize that companies with strong ESG

practices can drive top-line growth by expanding their customer base...[and] increase margins by reducing waste” (para. 11). Expanding on this, Jais and Albert (2022) of Accenture shared that “brand value in the context of ESG is becoming increasingly relevant due to the linkage between product or service pricing power and therefore profitability” (p. 18). This prevailing focus on topline and margin expansion fits into governance engineering and further highlights the commercial opportunities associated with integrating impact and ESG strategy.

Once impact and ESG levers are identified, the focus shifts to KPI governance and accountability structures, again mirroring Kaplan and Strömberg’s (2009) emphasis on detailed reporting and frequent KPI follow-ups tied to the business plan. According to PricewaterhouseCoopers (PwC)’s Private Equity Trends Report 2024, it is quite common to set ESG specific KPIs. For example, out of the 250 PE principals surveyed across the EU, UK, US and Switzerland, “63% of firms conducting continuous monitoring” which enables PE firms to “quantifiably track ESG performance, aligning it with broader investment objectives and enabling transparent reporting to LPs” (PwC, 2024, p. 58). Ecovadis (2022) recommended that relevant KPIs should be “verified and tracked to monitor progress and collate the information needed to create a data-driven value creation story that can ultimately be communicated to potential buyers and the broader market” (p. 16). MacGregor et al. (2024) identified “lack of standardized ESG data and the myriad of reporting standards creates confusion around which key performance indicators (KPIs) to measure...[t]his is further compounded by each limited partner (LP) having their own requirement for ESG reporting” (p. 5).

Through surveys of PE investors across geographies, a regional difference of KPI selection emerges. PwC (2024) states that 47 percent of the European survey respondents cite environmental factors as their primary concern and provides a summary headline of “Targeting the ‘E’, without ignoring the ‘S’ and ‘G’” (p. 60). In contrast, MacGregor et al. (2024) found that PE funds in Southeast Asia and India prioritize social responsibility and labor practices, followed by governance, and then climate and energy, which they speculate is due to the region's labor-intensive industry and higher risk of social non-compliance. These observations suggest that impact and ESG governance engineering includes creating and referencing a set of KPIs outlined by relevant external expectations (e.g., regulatory reporting frameworks as well as sector and regional focuses) and internal requirements (e.g., LP). MacGregor et al. additionally stress that “most ESG initiatives are cross-functional” and it is therefore critical to establish key result areas

across teams to guide a coordinated effort (2023, p.12). Overall, this aligns well with PE practices of small, active boards operating across functional siloes, while also highlighting an added layer of complexity: impact and ESG strategic roadmaps often span across procurement, operations, HR, legal, and commercial teams, increasing the importance of governance engineering role in identifying who is responsible for what and when.

There is both a challenge and an opportunity in tying impact- and ESG-specific KPIs to financial outcomes. According to PwC (2024), “[t]he majority of PE firms (69%) believe that the ROI of ESG initiatives exceeds their costs, confirming the business case for prioritizing ESG in investment” (p. 59). In order to better confirm the business case for prioritizing ESG as a value creation driver, MacGregor et al. recommend outlining direct and indirect financial links: “When there is a direct causal link, measurement of the impact of the ESG lever can be directly attributed to increase in revenues, EBITDA, net profit, or avoided costs. However, if there is an indirect link, then it will be important to understand the correlation in improvement in the ESG KPIs to the relevant financial metric” (2024, p. 7). This crucial integration underscores the role of governance engineering in embedding impact and ESG planning, budgeting, and valuation into decision-making processes that clearly identify financial linkages, and enable more disciplined assessments of value creation.

Incentive systems represent another important connection to classical governance engineering in PE. Kaplan and Strömberg (2009) emphasize equity incentive plans for managers and employees as a core governance tool. Geczy et al. (2021) study the incorporation of impact through analyzing a set of 207 legal documents signed by impact funds, 53 other funds and 96 of their portfolio companies, and found that “impact funds rarely tie compensation to impact outcomes. Instead, they generally tie compensation to financial performance with the usual waterfall compensation structure, although we show innovative alternatives too, especially among NMRS funds” (p. 698). The authors pointed out that for impact companies, impact is already embedded to their financial outcomes and therefore financial incentives, but found the limited impact outcome incentive plans a surprise.

While integrating impact and ESG into value creation plans, KPI monitoring and ownership oversight are emerging tools for steering outcomes, Kaplan and Strömberg’s (2009) emphasis on incentive systems, and a slower adoption of such mechanisms within impact and ESG strategies, points to a meaningful gap. This limited adoption either signals an underlying barrier to

implementing such mechanisms or an untested opportunity to formalize incentive structures that directly reinforce ESG objectives.

2.5.3 Steering Impact and ESG-Enabled Exit Readiness

Kaplan and Strömberg (2009) described how exit is the essential outcome of the PE model. Due to PE funds having finite horizons, investment exits — whether they be through selling to a strategic buyer, secondary sales, IPOs, management buyouts and others — serve as the point at which financial, operational, and governance value creation efforts are ultimately realized. Although Kaplan and Strömberg do not frame exit explicitly within or as a standalone engineering lever, exit considerations are inherently embedded in any act of engineering that orients the portfolio company’s attractiveness at exit, and are most closely aligned with the strategic dimension of governance engineering.

Academic research that directly examines impact or ESG related exit value uplift remains limited, but some emerging papers and practitioner insights begin to paint a potential picture. Long and Johnstone (2023) noted that “a key marketing premise for ESG investments [is] that they provide shareholders a premium valuation upon public listing or exit” (p. 947). Islam and Akroyd (2024) introduced the notion that most impact PE firms try to also ensure an “impactful exit” from their investments in addition to maximizing their financial returns (p. 3419). Roor and Maas (2024) echoed this consideration of whether impact can be maintained post exit and how “measuring to prove impact mainly relates to show accountability to stakeholders and relates to legitimacy, stakeholder and agency theory” (p. 3707). Roor and Maas (2024) also highlighted the risk of “mission drift” (p. 3708), referring to situations in which impact objectives pursued during the early stages of the ownership period are not sustained later, particularly at exit, when a new owner may deprioritize continuing with the impact- and ESG-related strategy. Islam and Akroyd (2024) mentioned that for companies where the delivery of impact is directly linked to business growth and financial success, that then “selecting impact business models mitigates ownership- and management- related threats to impactful exits” (p. 3436).

Islam and Akroyd (2024) used an inductive data analysis approach across a data set of 45 impact management reports and found that impact investors think about exit earlier on, stating “impact investors examine potential investment projects and discuss different exit scenarios even before investment takes place” (p. 3428). They present various control strategies for impact

investors to drive “impact exit readiness” and during the investing period reference much of what is outlined in the previous section where investors assist investee companies in improving governance systems and creating measurement and management systems, and they clarify that “investee companies with sound systems and processes are perceived as lucrative investments by potential buyers” (Islam and Akroyd, 2024, p. 3432).

Practitioners similarly emphasized the strategic importance of cultivating aligned future buyers. Jais and Albert (2022) of Accenture noted that, in addition to improving methodologies during the holding period to strengthen ESG exit narratives, leading PE investors “start curating a field of investors who will invest after their firm does, showing them what has been built as well as how and why the company is positioned for sustained success. This type of network building helps ensure PE firms capture the full benefits of the dual (financial and impact) value they create” (p. 18).

Practitioner insights further underscored the academic findings that ESG performance increasingly shaped exit opportunities. Ecovadis (2022) noted that companies with strong sustainability profiles can “exit better” with access to a “broader universe of capital” and may benefit from a “premium valuation for assets with a track record of success” (p.16). Jordan et al. (2024) of EY argued that “acquirers increasingly value companies with robust ESG credentials” and that a compelling, evidence-based “ESG equity story... can attract a broader range of buyers and increase the competitiveness of auction processes.” This adds to the growing importance of regulatory alignment in shaping exit pathways. PwC (2024) mentioned how landmark EU legislation “sets a benchmark against which PE funds can measure their portfolio companies and pave the way for cleaner, more profitable exits via strategic acquisitions to listed entities or IPOs” (p. 60). Walsh et al. of EY (2024) similarly described how “if a business can’t satisfy ESG reporting requirements, some initial public offering (IPO) routes will be closed when it is time for exit” in describing how the drivers of PE value creation are changing. This is further reinforced by the fact that several global exchanges are increasing minimum ESG disclosure expectations for listed companies. For instance, the Hong Kong Stock Exchange mandates ESG mandatory disclosure requirements with “comply or explain” provisions (HKEX, 2022), and Singapore Exchange requires sustainability reports (SGX, 2023). As alluded to earlier, all public companies in the EU will likely be subject to the Corporate Sustainability Reporting Directive (CSRD) (European Parliament and Council of the European Union, 2022). Together, these insights

demonstrate that ESG capabilities increasingly affect not only valuation but also which exit channels remain viable.

Although empirical evidence on ESG-linked valuation premia in private markets remains limited, early practitioner data suggests some willingness to pay extra for strong impact and ESG companies. MacGregor et al. report that 75 percent of surveyed respondents in Southeast Asia and India are prepared to pay more for companies with a positive ESG track record with 57 percent of surveyed funds “are willing to pay only up to an extra 0.5x EBITDA multiple premium (for reference, most private capital assets are traded at anywhere between 5x and 20x EBITDA)” (2024, p. 4). Other reports are vaguer with Ecovadis declaring that “a PE firm that can demonstrate it has improved a portco’s [portfolio company’s] ESG performance – either within its operations or through a more sustainable product or service offering – stands to realize a significant gain upon exit” (2022, p. 16).

Considered collectively, the literature suggests that the mechanisms through which ESG and impact shape exit can be positioned within the strategic steering that comes with Kaplan’s and Strömberg’s (2009) governance engineering. What impact- and ESG-oriented approaches add is a more anticipatory orientation, where exit considerations increasingly begin prior to investment, with investors evaluating buyer expectations, relevant regulatory and IPO requirements early on. In parallel, there is a need for PE investors to deliberately cultivate a relevant buyer network. By embedding impact and ESG engineering into governance-led exit planning, PE owners can strengthen their ability to realize and extend the dual value they worked to create.

Given the limited and inconsistent evidence on how ESG performance translates into valuation and outcomes for PE held investments, future research and practice should focus on identifying the conditions under which ESG is capitalized into price, clarifying how governance mechanisms can most effectively support capturing and sustaining dual value at exit.

2.6 Operational Engineering

In Kaplan and Strömberg’s (2009) framework, operational engineering refers to the provision of non-financial resources, tools, and expertise that PE investors deploy to enhance portfolio company performance. These interventions extend beyond specific financial expertise and governance mechanisms by embedding operational support and professionalized management practices. As PE has matured, firms have increasingly built operational capabilities that allow them

to meaningfully influence operational improvement, even without majority ownership. As they argued, the “the relatively new operational engineering capabilities of private equity firms may put them in a better position to supply minority investments than in the past, because private equity firms can provide additional value without having full control” (Kaplan & Strömberg, 2009, pp. 143-144).

Since Kaplan and Strömberg published their findings on the emergence of operational engineering in 2009, the capacities deployed by PE investors have naturally evolved in response to new strategic priorities, including those increasingly embedded through governance engineering and related value creation plans. As value creation plans increasingly integrate impact and ESG considerations, PE investors must correspondingly adapt their operational engineering levers to facilitate these additions and related processes, while accounting for rising regulatory pressure and stakeholder expectations.

When considering impact and ESG engineering in the operational context, academic literature and practitioner reports reveal two core pathways through which this integration occurs. The first relates to capacity building and organizational development, where investors cultivate the managerial, technical, and governance foundations necessary for ESG alignment. The second comprises operational efficiency, cost reduction and risk mitigation through which ESG initiatives serve to shape operational performance, resilience, and long-term value creation. Together, these pathways illustrate the evolving nature of operational engineering within contemporary PE as impact and ESG strategies continue to gain prominence.

2.6.1 Building Capability and Organizational Development for ESG Integration

Private equity is uniquely positioned, through its deep strategic and operational involvement, to build the foundation for capacity building in ESG integration. Crifo and Forget (2015) argued that PE firms “possess industry and operational expertise by their choice of human capital. They are thus able to advise companies at the core of their business to enhance value creation. Distinguishing value-creation CSR from managerial entrenchment requires a sound understanding of the firm environment and markets, which Private Equity possesses” (p. 25). This expertise underpins PE’s comparative advantage in supporting portfolio companies as they strengthen their organizational systems, governance structures, and management practices related to ESG.

Long and Johnston (2023) advanced this perspective by demonstrating that many ESG practices in Asian PE markets remain procedural or compliance oriented rather than operationalized. Their proposed “Deep ESG” framework introduced a systematic approach to embedding ESG across sourcing, due diligence, operational planning, governance, and exit. They emphasized: “The driving principle of Deep ESG is to operationalize ESG and sustainability metrics by engaging management commitment to the SMP [sustainability migration plan], moving assessment to an outcomes focused approach, establishing higher aspirations across an entire investment portfolio and enabling the holistic evaluation of performance” (Long and Johnston, 2023, p. 957). The Deep ESG mindset places emphasis on how to operationalize or practically achieve these plans to ultimately reach tangible ESG-driven outcomes.

A growing body of research emphasizes the importance of organizational capabilities that enable firms to respond to rising ESG pressures. Lee et al. (2024) framed the necessity for firms’ continuous training to address environmental concerns, resource allocation for social responsibility, and governance practices to fulfill stakeholder needs, ultimately contributing positively to triple bottom line performance (p. 5261). Their findings also revealed that digitalization capability strengthens firms’ capacity to innovate business models and enhance sustainable outcomes (Lee et al., 2024, p. 5261).

Zaccone and Pedrini (2020) survey of 23 leading PE firms showed that many now employ internal ESG committees that bring together investment professionals and functional specialists (p. 6). Rubanovici (2020) further framed that while there “are plenty of ESG specialists, guidelines, and recommendations that different professionals or organizations set out to help investors to create an ESG framework for a company... having a general set of guidelines applicable to all companies might not always be the case, since every company is unique” (pp. 9-8). In addition to making the case for tailor-made functional ESG support programs for portfolio companies, Rubanovici also shared that in-house ESG PE teams can vary in size, typically from one to fifteen, depending on the portfolio size and sustainable investing approach (2020, p. 10).

Industry reports and practical guidance reinforce these trends. Singapore Venture & Private Capital Association and Alvarez & Marsal report, authored by MacGregor et al. (2023) found that most portfolio companies lack dedicated ESG personnel, which creates capability gaps that investors increasingly attempt to fill. The report recommended structured capability building interventions including targeted training, recruitment of in-house sustainability professionals,

external advisory support, and the development of monitoring systems for involving regulations and even suggested tracking related KPIs such as number of ESG training hours delivered (pp. 5, 12). Complementing this, Ecovadis (2022) noted that although most PE firms are hiring sustainability officers, many still lack the personnel and systems required for comprehensive ESG integration, making capacity building a critical operational lever.

2.6.2 Facilitating ESG-Driven Operational Efficiency, Cost Reduction, and Risk Mitigation

A second theme emerges through the ways and means by which ESG-linked operational interventions contribute to efficiencies, cost reductions, and enhanced risk mitigation, which closely parallel traditional operational engineering levers. Beginning with the more traditional consideration of risk mitigation, Crifo and Forget (2013) reported that most PE respondents view social responsibility as a risk management mechanism with “64 % of the respondents (77 % of UN PRI signatories) believe ESG issues matter for risk management” (p. 34). MacGregor et al. (2023) recommended strengthening risk mitigation efforts by improving regulatory compliance; preparing for transition risks associated with emerging regulations such as the Carbon Border Adjustment Mechanism (CBAM) and the Corporate Sustainability Due Diligence Directive (CSDDD); assessing vulnerabilities to physical climate risks; reinforcing labor practices; improving supply-chain resilience; and reducing insurance premiums through enhanced ESG governance (pp. 6–8).

Regarding operational efficiency and cost reductions, MacGregor et al. (2023) outlined opportunities including the shift to sustainable raw materials, the transition to renewable energy sources, asset upgrades that improve energy efficiency, logistics optimization for fuel efficiency, product value engineering to reduce material intensity, and the implementation of waste-reduction and circularity initiatives (pp. 6–8). An EY report authored by Walsh et al. (2024) shared that companies with strong ESG practices frequently outperform peers through waste reduction, supply-chain optimization, and the elimination of low-margin product lines. These findings reinforce the growing recognition that ESG-aligned operational improvements can meaningfully enhance financial performance and strengthen competitive positioning.

2.7 An Expanded Impact and ESG Engineering Model Emerges

In analyzing the PE engineering levels set out by Kaplan and Strömberg (2009), Enhammar and Qvenild (2019) shared that a limitation of this theoretical framework is that it “is still under

development since new types of engineering actions seem to emerge constantly” (p. 17). Building on this observation, the developments identified throughout this literature review — whether through reducing borrowing costs and enabling access to green, social, sustainability, and sustainability-linked financing instruments within financial engineering; the establishment of ESG-aligned strategic mindsets, road-mapping, KPI systems, performance management structures, and impact-oriented exit readiness within governance engineering; or the expansion of operational engineering to encompass capability building, organizational development, and ESG-driven efficiency, cost-reduction, and risk-mitigation levers — collectively illustrate how new forms of engineering have emerged in contemporary PE practice, particularly among firms that employ impact- or ESG-focused investment strategies.

While this literature review establishes a growing conceptual foundation for integrating ESG and impact within PE value creation, there remains limited research on how these emerging ESG- and impact-enabled levers are implemented in practice. To further assess how and to what extent these added levers are adopted, the thesis examines how investment professionals and other practitioners within PE and adjacent spaces describe and operationalize their work across the investment cycle.

3. METHODOLOGY

This study adopted a qualitative interpretive research design to examine how PE, VC, and impact-oriented investment professionals conceptualized and integrated impact and ESG across the investment cycle. Because the field is evolving rapidly and both researchers and practitioners are still negotiating definitions, boundaries, and applications of impact and ESG, an interpretive approach was well-suited to capturing the meaning-making processes through which investors construct and enact these concepts in practice.

To generate findings grounded in the language, experiences, and mental models of investment professionals, the researcher used the Gioia methodology (Gioia et al., 2013), an inductive approach designed to surface relationships among participant statements, researcher interpretations, and emergent theoretical insights. Beyond the ambiguity surrounding the concepts of impact and ESG, practice has moved ahead of the academic literature, necessitating an inductive approach that allowed concepts and themes to emerge from practitioner experience rather than forcing them into pre-existing categories. Additionally, this study’s research questions focused on

how practitioners made sense of, implemented, and extended value creation frameworks, which was an ideal match for Gioia's emphasis on lived experience, meaning structures, and grounded theorizing (Gioia et al., 2013). Finally, the goal of this methodology was not to test whether impact and ESG created financial value, but to understand how practitioners conceptualized and integrated these logics into Kaplan and Stromberg's (2009) PE value creation model. This aligns with the exploratory orientation outlined in Section 1.

3.1 Data Collection

To address the research questions and illuminate how practitioners construct and integrate impact and ESG logics across the investment cycle, this study relied on qualitative data drawn from in-depth semi-structured interviews with professionals directly engaged in PE, VC, and sustainability practice. Given the exploratory and interpretive aims of the thesis, the priority was to collect rich, experience-driven accounts that reflected how investors understand and operationalize emerging approaches to value creation.

3.1.1 Sampling Procedure

This study employed a purposive sampling strategy to identify participants with direct experience integrating impact and ESG considerations into PE and VC investment processes. Purposive sampling is well established in contemporary qualitative organizational and finance research as a means of selecting participants whose expertise is necessary to illuminate complex, practice-based phenomena (Hennink & Kaiser, 2022; Saunders et al., 2018). In sustainable finance and impact investing research, recent qualitative studies similarly relied on purposive sampling to access specialized practitioner knowledge and emergent market practices (Kölbel & Lambillon, 2022; Paetzold & Busch, 2014).

To capture meaningful variation and strengthen concept development, this study used maximum variation sampling, a strategy increasingly emphasized in recent methodological literature to enhance analytic richness and theoretical transferability (Hennink & Kaiser, 2022; Saunders & Townsend, 2018). Therefore, the sample included practitioners from Article 8 and Article 9 funds, traditional PE firms, sustainability advisory practices, and academia. Such diversity aligns with inductive approaches, specifically the Gioia methodology, which emphasizes

sampling participants who can reveal the range of conceptual categories needed to support rigorous theory building (Gioia et al., 2013).

Participants were identified through professional networks, industry events, and sustainability-oriented investment platforms. They were invited based on their role in shaping ESG strategy, operationalizing impact frameworks, or leading investment decision-making. The final sample of 16 practitioners provided sufficient breadth and depth to achieve conceptual saturation, meaning additional interviews no longer yielded novel insights (Hennink & Kaiser, 2022). This ensured that the first-order codes, second-order themes, and aggregate dimensions produced through the Gioia analysis rested on a robust and diverse empirical foundation.

3.1.2 Semi-Structured Interviews

Consistent with qualitative interpretive methods, data were collected through 16 semi-structured interviews with PE, VC, and sustainability professionals based in Sweden, Switzerland, the United States, and broader Europe. Semi-structured interviews were selected because they provided the flexibility needed to explore emerging concepts while maintaining comparability across interviews (Yin, 2018). Interviews lasted an average of around 45 minutes and were conducted in person or via video conferencing. Interviews were recorded, transcribed, and anonymized, with the exception of a few participants who requested their interviews not be recorded. In these two cases, the researcher took detailed notes, including key quotes, which were later reviewed for inclusion in the data analysis. One interview was rescheduled numerous times, and the researcher ended up conducting a detailed dialogue with the participant through several email exchanges.

3.1.3 Interview Protocol

Selected participants were contacted via email and LinkedIn. Upon agreeing to participate, a meeting was scheduled via Google Meet or equivalent platforms. The interview began with an explanation of the purpose of the study, followed by a request for permission to record the interview. Upon agreement, the researcher framed the first goal of the interview to learn more about the participants' role and how their firm worked with impact and ESG (see Appendix 8.1 for list of interview questions). The researcher then guided the conversation to introducing Kaplan and Strömberg's (2009) PE value creation model and getting perspective on how ESG and impact

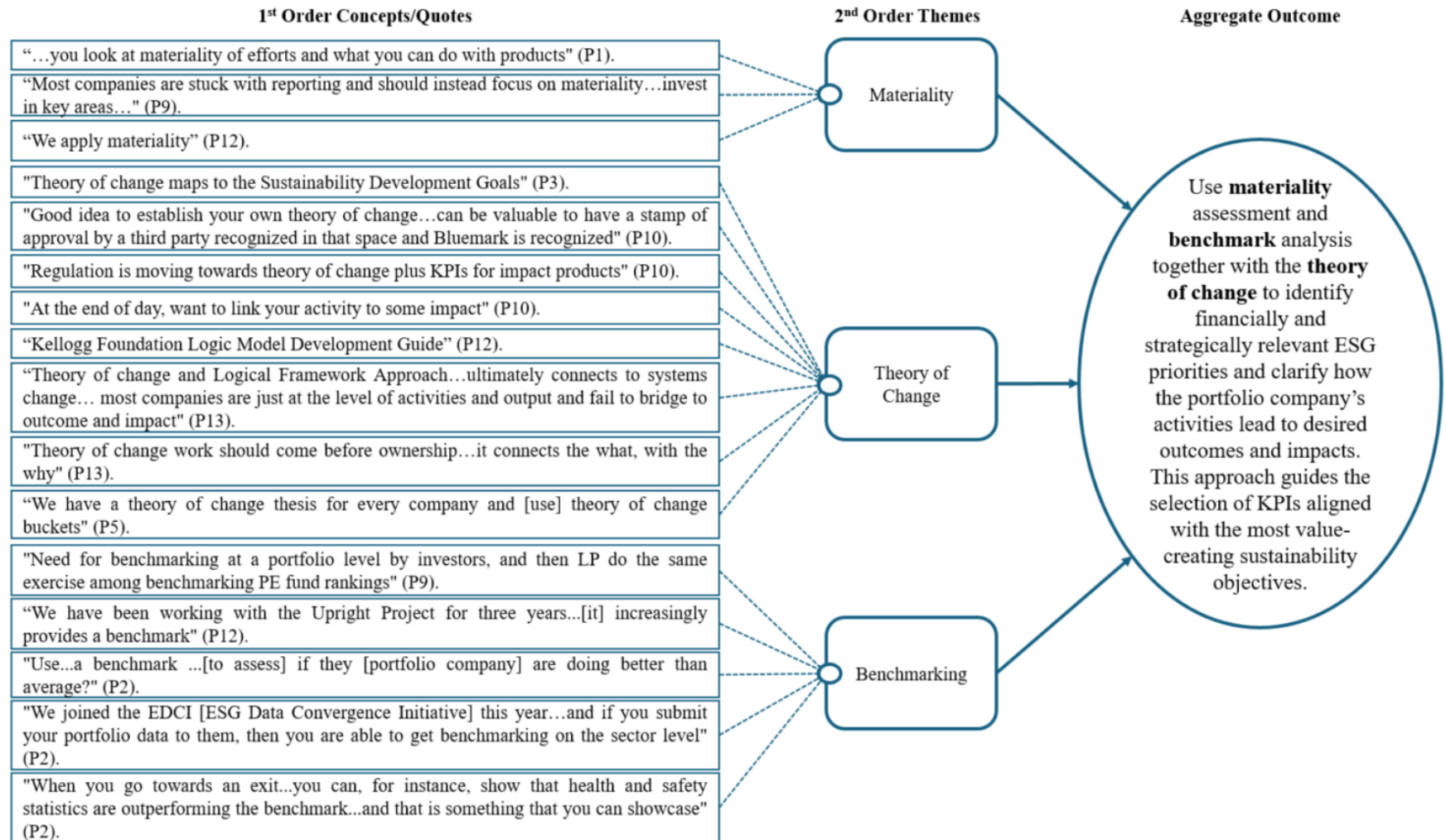
could be considered. This structure allowed the data to speak directly to the research questions while maintaining openness for participants to introduce novel concepts, practices, and challenges.

3.2 Data Analysis Methodology

Data were analyzed using the Gioia methodology, an inductive, systematic approach to qualitative coding that foregrounds participants' voices and provides a clear audit trail between the raw data, emerging concepts, and theoretical insights (Corley & Gioia, 2004; Gioia et al., 2013). Because the researcher desired a flexible approach "open to innovation," the Gioia methodology provided the means for maintaining malleability while still "rigorously demonstrating the connections between data and theory" (Gioia et al., 2013, p. 26). To do so, the researcher followed a three-step process beginning with first order (or participant-centered) concepts, followed by second order (or research-centric) themes, and summarized aggregate dimensions (or theoretical insights). Figure 1 illustrates an example of how the researcher employed the Gioia methodology.

Figure 1

Example of Impact and ESG Integrated Governance Engineering: Materiality, Theory of Change, and Benchmarking



Note. In line with the Gioia methodology, the 1st order concepts are direct quotes from the participant interviews, and the aggregate outcome is a lever of impact- and ESG-enabled governance engineering ultimately proposed in the key findings.

The methodological approach outlined in this section generated a rich set of practitioner-centered insights into how impact and ESG considerations are understood and enacted across the investment cycle. By moving systematically from first-order participant concepts to second-order themes and aggregate dimensions, the analysis produced a structured interpretation of how PE investors integrate, challenge, and extend traditional value-creation logics. The following section presents these findings, organized around the core themes that emerged from the inductive analysis, and directly addressing the study's research questions.

4. FINDINGS

Section 4 presents the findings of this qualitative study examining how PE, VC, and impact-oriented investment professionals conceptualize and integrate impact and ESG across the investment cycle. The following research questions guided this study:

1. How do PE professionals conceptualize impact and ESG?
2. How are impact and ESG operationalized across sourcing, diligence, ownership, and exit?
3. How can Kaplan and Strömberg's (2009) value creation model for PE investors be expanded to include impact and ESG?
4. What barriers and enablers shape impact and ESG adoption?

Using the analytical strategy outlined in Section 3 (Methodology), findings were derived from 16 semi-structured interviews of practitioners and experts in the field. The purpose of this section is to answer the study's research questions by examining how practitioners and experts in the field (1) perceive impact and ESG, (2) operationalize impact and ESG from sourcing through exit, and (3) how their practices support the expansion of Kaplan and Strömberg's (2009) traditional value creation model to incorporate impact and ESG.

4.1 Participants

The group consisted of 16 participants, with eight based in Sweden (Stockholm), three in Switzerland (Zurich), two in the United States (Boston), and three in other European locations (Norway and Amsterdam). Of the total participants, eight of the 16 identified as women. The majority of participants came from PE and VC firms, including both Article 8 and Article 9 fund investment strategies, along with representation from a serial acquirer, sustainability

consultancies, an impact management platform, and academia. In terms of roles, most participants held senior leadership or strategic titles, including board members, chief executive officers (CEOs), partners, principals, heads of impact or ESG, or were responsible for leading impact and ESG. Others served in investment-focused or advisory capacities. Overall, the group represented a geographically and professionally diverse network of impact- and ESG-driven investment professionals, academics, and advisors across Northern Europe and the United States. Table 1 provides an overview of the study's participants.

Table 1*Study Participants*

ID	Location	Company Type & Focus	Role
1	Stockholm	PE (Article 9)	Former Partner, Current Board Member, and Senior Impact Advisor
2	Amsterdam	PE (Article 8)	Sustainability Associate Director
3	Boston	Impact Management Platform	Impact Investing Consultant
4	Stockholm	PE (Buy & Build)	Investment Analyst
5	Oslo	VC (Article 8)	Investment Manager, Board Observer
6	Boston	VC (Impact)	Principal
7	Stockholm	VC (Article 9)	Head of Impact
8	Stockholm	VC (Article 9)	Head of Impact
9	Stockholm	Sustainability Consultancy	CEO and Academic Researcher
10	Zurich	University	Sustainable Finance Researcher & Professor
11	Oslo	VC (Article 8)	Investment Manager, Board Observer, Impact Lead
12	Zurich	PE (Article 9)	Head of Impact
13	Zurich	Sustainability Consultancy	CEO
14	Stockholm	Serial Acquirer	Partner
15	Stockholm	VC	Investment Director, Impact Lead
16	Stockholm	Corporate Bank	Advisor for Green and Sustainability-Linked Bond and Loans

Note. Table 1 summarizes the 16 professionals interviewed, detailing their locations, organizational types (including SFDR Article 8/9 classifications), and roles related to impact, sustainability, or investment practice.

4.2 Data Analysis

4.2.1 Expanded Value Creation Model: Integrating Impact and ESG Engineering

Further expanding upon and organizing these themes, Table 2 integrates impact and ESG engineering into Kaplan and Strömberg's (2009) PE value creation model. Based on semi-structured interviews with PE and VC investment professionals, impact and ESG practitioners, and research specialists, impact and ESG engineering and its sub-components are understood as an integrative, horizontal dimension that augments financial, governance, and operational engineering levers. Dimensions that position impact and ESG as drivers of growth, competitive differentiation, and market creation are situated within Governance Engineering, underscoring sustainability's expanding role as a strategic steering mechanism in PE. Participant alignment indicates which interviewees contribution to the development of each sub-dimension (labelled by the letters), either through active brainstorming or by explicitly endorsing its inclusion when presented with a draft of the framework.

Table 2

Expanded Private Equity Value Creation Model: Integrating Impact and ESG Engineering

Traditional Value Creation Levers, Definitions, and Mechanisms (Kaplan and Strömberg, 2009)			Impact and ESG Engineering (Horizontal Integration)	Participant Alignment	Sample Statements
Financial Engineering	Optimization of capital structure	PE firms manage high leverage effectively through fund backing, distress experience, and lender relationships. Ability to secure favorable debt terms via expertise and relationships.	A. Strengthen the impact and ESG narrative with corresponding data transparency to reduce perceived risk, enhance credibility, and expand access to capital	1, 2, 3, 6, 7, 8, 9, 10, 11, 16 (63%)	"We spend a lot of time cleaning up the cap table and making the impact narrative more crisp" (P6). "Our general take on this is: more transparency [leads to] opportunity for lower perceived credit risk, [which leads to] a broader pool of lenders willing to engage" (P16).
			B. Facilitate securing sustainability-linked loans and green financing instruments by improving relevant ESG KPIs to decrease borrowing rates and strengthen the signaling of sustainability commitment to lenders and the market.	2, 3, 4, 7, 9, 10, 11, 16 (50%)	When referring to GSSS offerings, "This might be tricky for early-stage startups: it might require resources that are unavailable to answer to the Five principles of an SLL" (P16).
			C. Support the use of impact-oriented capital structures, such as blended finance or more patient capital models that enable longer-term, inclusive value creation. These approaches create non-dilutive funding opportunities, including various types of grants as well as	3, 6, 8, 9, 10, 11, 12, 15 (50%)	"We use technical assistance funding from DFIs for development work that goes beyond the scope or budget of our GP" (P12).

Note. The added components in this table (Impact and ESG Engineering, Participant Alignment, and Sample Statements) are derived from qualitative interview data and illustrate how practitioners extend impact and ESG mechanisms into classical private equity value creation levers.

technical assistance facilities provided by development banks.					
Governance Engineering	Enhanced monitoring, incentive alignment, and strategic direction	Active ownership through controlling stakes.	A. Provide strategic leadership by positioning impact and ESG as levers for growth, competitive differentiation, and long-term resilience. This includes supporting impact scaling within core business, enabling market creation through new products and services, and enhancing brand and customer value.	1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 (81%)	“The hope is to get ESG to be an inherent part of your investment thesis, take it along in the 100 day and value creation plan and think about exit” (P2).
		Small, motivated boards with PE partners, external experts, and management.	B. Use materiality assessment and benchmark analysis together with the theory of change to identify financially and strategically relevant ESG priorities and clarify how the portfolio company’s activities lead to desired outcomes and impacts. This approach guides the selection of KPIs aligned with the most value-creating sustainability objectives.	1, 2, 3*, 4*, 5*, 7*, 8, 9, 10*, 11*, 12*, 13* (75%)	“Most companies are stuck with reporting and should instead focus on materiality... golden eggs [are] not used” (P9). "Theory of change work [and using Logic Model framework] should come before ownership” (P13).
		Detailed KPI reporting and follow-ups linked to business plans. Equity incentive schemes for management and employees.	C. Integrate impact and ESG KPIs into business and value creation plans, while also linking performance against these KPI targets to remuneration structures such as bonuses, carried interest	1, 2, 5, 7, 9, 10, 12, 13, 15 (56%)	“Carried interest is only paid out once a certain impact KPI [percentage of set threshold] is met” (P7).

*Mentioned using theory of change explicitly (50%).

payouts, and other incentive schemes.

- | | | |
|---|-------------------------------------|---|
| D. Formalize ESG governance structures through designating or hiring sustainability leads, creating ESG steering committees, and instituting board-level updates, reporting, and oversight. | 2, 4, 5, 8, 9, 12, 15
(44%) | "We actually put [hiring an ESG or impact manager] quite frequently, at a certain stage...because that's usually the gateway to do more. Without that it's very tough because otherwise it sits with the CFO or COO and then [we] actually have a hard time" (P12). |
| E. Embed stakeholder and diversity considerations into governance decision-making to ensure a wider range of perspectives informs risk and opportunity assessments and strengthens overall decision quality. | 3, 4, 5, 6
(25%) | <p>"More diverse check writers will have solutions that serve diverse communities" (P6).</p> <p>"Aim to have different genders represented among founders and leadership team" (P5).</p> |
| F. Steer superior exits by cultivating a growing network of aligned buyers early on that are increasingly interested in sustainable businesses and evident impact outcomes. When preparing a portfolio company for a public exit, it is necessary to anticipate and address the varying ESG-related requirements associated with certain IPO processes. | 2, 4, 8, 9, 10, 11, 12, 14
(50%) | <p>"ESG support is with the exit in mind" (P4).</p> <p>"In the current market we are not in a position of picking from various impact buyers, but often impact is so tied to the business offering it will inherently scale with the business" (P12).</p> |

Operational Engineering	Deployment of non-financial resources and expertise	Leveraging non-financial capabilities and networks (M&A, industrial, functional teams). Use of consultants, expert board members, and 100-day plans to drive strategic and operational change.	A. Deploy dedicated impact and ESG teams, complemented by external specialists and platform tools to provide functional support in areas such as regulatory alignment, sustainability reporting, carbon and net zero modelling, supply chain management, climate risk assessments, and ESG rating analysis.	2, 3, 4, 5, 7, 9, 12, 13, 15 (56%)	"We set different management systems for impact and its strategic considerations, and ESG on more on the operating level" (P12).
			B. Build organizational capacity for KPI measurement, reporting systems, and risk management across portfolio companies to enable improved methodologies, higher quality data, and more informed decision making.	2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 15 (69%)	"...digitalization and aggregating [are becoming increasingly important for portfolio companies]" (P9).
			C. Orient impact- and ESG-enabled operational improvements to achieve efficiency gains through cost savings and process optimization, enhance competitive positioning by attracting talent and customers, and mitigate key operational and reputational risks. A parallel priority is to strengthen regulatory advantage by staying ahead of emerging requirements and building stakeholder and government relationships.	1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13, 15 (75%)	"Regulation can be the biggest risk or opportunity" (P5). "A big help for companies is simply getting them to the key introduction faster" (P6).

4.3 Introductory Framing: ESG and Impact Dimensionality

Across interviews, participants naturally (or when prompted) differentiated ESG from impact. Three participants explicitly framed impact as the “what” and ESG as the “how” (P1, 8, 12). The impact “what” was consistently described in relation to the portfolio companies’ purpose, offering, and intended change, whereas the ESG “how” referred to more of the management systems, policies, and processes to facilitate responsible and well-governed operations. Along these lines, two participants (P2, 10) additionally referenced the Five Dimensions of Impact (see Impact Frontiers, 2021), which include “what, who, how much, contribution and risk.” Additionally, one participant positioned ESG as “trying not to do bad” and how it is more of “an orientation to avoid the negative”, while impact was the value driver enabling “systems change” (P13). Another described investor impact as engineering “impact scaling journeys” (P4). Together, these participant insights anchored the concept that impact and ESG are complementary rather than competing constructs, and that they integrate well within an “impact and ESG engineering” approach. Interviews suggest an orientation where impact aligns more with governance and strategy whereas ESG frameworks support operational discipline, risk and opportunity assessment, and long-term resilience.

Notably, no participant pushed for adding an impact and ESG dimension as a standalone row, and many were rather adamant that it should be as integrated as possible. An investment manager and board observer of a VC Article 8 Fund was explicit and cautioned, “I would implore you not to silo impact investing into its own row as it should be integrated” (P5). Another impact lead of an Article 8 VC Fund agreed that it makes sense to add impact and ESG dimensions in its own column for now but shared “My hope is that we will not even need to mention ESG or impact and that it will just be integrated” (P11).

While there was general consensus around adding impact and ESG engineering as an integrated column, a senior impact adviser brainstormed iterations that included adding a row labeled “sustainable value creation engineering” and an additional column for ESG (P1). While an investment analyst of a PE buy and build strategy explored whether the quality of impact investors finding “radically new markets” warranted a separate dimension, or if it could fit within the strategic elements of an extended governance engineering (P4). The analyst referenced the “Blue Ocean Strategy” (see Kim & Mauborgne, 2015) and the aim to “be the first mover [in a new market] and stimulate demand” (P4). Another participant shared the perspective that, for impact

PE or VC investors, the existing Kaplan and Strömberg (2009) value creation model would, at a minimum, allow investors in companies that provide impactful products and services to “scale the good stuff” (P10).

4.3.1 Financial Engineering

Throughout the interviews, participants described three primary ways in which ESG and impact considerations shape financial engineering.

(A) 63% of participants emphasized the importance of strengthening the impact narrative with the support of data. Several participants explained that a clearer and more credible sustainability story supports general financing efforts, with Participant 6 noting, “We spend a lot of time... building their [portfolio company’s] impact story with data.” A participant working in a corporate bank clarified that greater transparency leads to a lower perceived credit risk, which in turn expands the pool of lenders willing to engage (P16). This statement reflected a widely shared view that better articulation of impact performance is increasingly part of preparing companies to engage with lenders and investors.

(B) Half of the group discussed how alternative financing only being available to impact companies or portfolio companies with more mature ESG strategies. These participants described how improved ESG performance can help companies qualify for green or sustainability-linked loan structures and potentially secure more favorable terms. However, a couple of participants stressed that not all companies are in a position to take advantage of these instruments. As an investment director who also leads impact at a VC firm explained, we have various companies that are still in the midst of trying to reach profitability, and we want to be careful of their cash flows, and therefore discourage them from seeking debt financing (P15). A specialist in the GSSS issuance space that works for a corporate bank shared that “the bond-market is in general not an alternative for start-ups, so that leaves loans. I have no legal knowledge of any limitations that would hinder a start-up from getting an SLL or similar in place, however, the criteria...for having an SLL in place still applies regardless of the company size. Such criteria might be more or less difficult for start-ups to answer to” (P16). She clarified in this way, these “instruments are more accessible for more mature companies” (P16). She further explained from the bank’s perspective that it can be quite a lot of work for a bank to set up GSSS instruments and for smaller companies where the risk is too high and the bond size is small, “I don’t believe there is margins for doing

that” (P16). In his role as the CEO of a sustainability consultancy, Participant 9 similarly reflected that for many companies the focus is still on going to the bank for traditional lending instruments, but how they can still leverage their ESG maturity to reduce the perceived risk.

(C) A further 50% reference impact aligned capital structure, including blended finance, technical assistance facilities, grants, insurance-based mechanisms, and other catalytic funding partnerships. Interviewees distinguish clearly between these instruments where technical assistance was described as funding used to solve specific development challenges or building capacity, whereas grants were framed as direct financial transfers. Examples for technical assistance facilities are often related to getting support on how impact could be measured in specific contexts. The Head of Impact for an Article 9 VC fund that has impact investments from Europe and Asia to Africa, shared “we use technical assistance funding from DFIs [Development Finance Institutions] for development work that goes beyond the scope or budget of our GP” (P12). When asked about blended finance options, an investment manager who leads impact at an Article 8 VC fund that focuses more on investments in the Nordic region, shared that she associates these finance options with more “philanthropic” models (P11). Alternatively, the impact lead of a more traditional growth, long-term owner-oriented VC firm, whose holdings are primarily in Sweden, shared that they helped one of their portfolio companies access an applicable EU subsidy.

4.3.2 Governance Engineering

Governance engineering emerged as a strong area of impact and ESG integration across the interviews. Overall 81% of participants described using governance mechanisms to position impact and ESG as a core strategic lever; 75% referenced the general use of materiality and benchmark analysis as well as theory of change frameworks; 56% reported integrating ESG and impact KPIs into value creation plans and incentives; 44% discussed formalizing related governance structures; 25% highlighted stakeholder and diversity considerations; and 50% connected governance engineering to exit readiness and buyer alignment. These findings show that impact and ESG are becoming central to how investors define strategy, set priorities, structure decision-making, and prepare companies for exit.

(A) Most participants describe governance engineering as the primary mechanism through which impact and ESG shape portfolio company strategy. As shared by a sustainability associate director for a PE Article 8 fund, “the hope is to get ESG to be an inherent part of your investment

thesis, take it along in the 100-day and value creation plan, and think about exit” (P2). Similarly, the head of impact for an Article 9 PE fund made clear, “Impact and ESG is actively and explicitly a part of our strategic leadership” (P12).

Investors frequently aligned their role as steering companies on an “impact scaling journey” (P4) and the top-line growth this provides. A CEO of a sustainability consultancy that often helps investors map their impact clarified, “Impact is value creation and embedded to the core, enabling systems change” (P13). Others framed their strategic role in terms of promoting better business models through sustainable leadership practices (P14).

(B) The use of materiality, benchmarking, and theory of change frameworks is widely aligned as a way to inform strategic focus areas. Several participants stressed the need to shift companies away from compliance-oriented reporting and more towards value-oriented prioritization. A CEO of a sustainability consulting firm in Stockholm captured this sentiment clearly: “Most companies are stuck with reporting and should instead focus on materiality” and that this causes “golden eggs” or key value creation opportunity areas not to be identified and leveraged” (P9). He also mentioned the importance of benchmarking impact and ESG approaches and performance at both the portfolio company level and at the fund level. Another participant shared how his firm joined the ESG Data Convergence Initiative (EDCI) which is a standardize framework aimed at improving ESG data particularly in the PE sector (P2). The Upright Project was also mentioned as a promising, emerging open-access platform for impact data that can generate net impact assessment, double materiality assessments (DMAs), UN SDG alignment, EU Taxonomy, and EU SFDR Principle Adverse Impacts (P10, 12).

50% of participants explicitly mentioned the theory of change work, and many shared how utilizing this theory should precede ownership or be initiated early on in the holding period. To practically implement this theory, several participants use the Logic Model Development Guide (see W. K. Kellogg Foundation, 2004) and other related frameworks. A CEO of a sustainability company that often maps out the theory of change through the logical framework (sometimes referred to as the “logframe”) describes how this framework lists the activities, outputs, outcomes, and impact of the theory of change model as “strategies of intervention” and then maps out a “key performance indicators, means of verification, as well as listing any assumptions or risks” for each strategy of intervention. He adds that many investors and their portfolio companies are “just at the level of mapping activities and outputs and fail to bridge to outcome and impact” (P13). To try to

get out of the complexities of implementing these theories and frameworks, one participant shared the personal guide he uses to simplify to the following breakdown:

- Impact is what exactly are you trying to achieve?
- The theory of change relates to how are you achieving this? Which steps are you taking?
- Measurable outputs come from show[ing].. that you are taking those steps.
- An impact estimate is produced through providing some careful estimate of the impact. (P10).

(C) Most participants reported incorporating ESG and impact KPIs into value creation plans and board updates, and in some cases linking these KPI to remuneration. As it relates to the latter, a head of impact of an Article 9 VC fund provided a clear example, “Carried interest is only paid out once a certain impact KPI [threshold] is met” (P7).

Others described using the theory of change and logical framework process to set cross-functional OKRs and identify 2-3 levers that really matter for the portfolio companies’ value creation (P12, 13). As it relates to verifying these KPIs, a couple of participants mentioned Bluemark as a leading external assessment provider in addition to the offerings from some of the major consulting firms (P10,12).

(D) Investors also described building governance systems to support ESG and impact execution in their portfolio companies. Examples included designated sustainability leads, establishing ESG steering committees, creating integrated management systems such as with investment committees, and, at a minimum, having regular board level oversight. A head of impact for a VC fund, noted that there is merit to seeing what structure the portfolio company finds useful and following their lead (P8). She shared how one of their portfolio companies took it upon themselves to create an ESG steering committee and ask her to join, and how this set up has worked well for this company but might not be the right fit for other portfolio companies (P8).

An investment director and impact lead of a VC firm described seeing effective models in their portfolio companies with sustainability ambassadors having connection to management teams and therefore a connection point to strategic decision making (P14). She also discussed the pros and cons to different areas that ESG functions report to. For example, reporting to the COO could be useful for a transportation company where lots of ESG materiality relates to their operational systems, compared to an approach of reporting to the CFO for better budget alignment (P14).

(E) At 25%, a smaller but notable share of interviews mentioned the importance of expanding who participates in governance and decision-making. An impact PE investor that has historically worked with marginalized communities in the US shares, “More diverse check writers will have solutions that serve diverse communities” (P6). Some investors formalized diversity expectations at the founder or leadership level often working towards a 50-50 gender split (P4,5)

(F) Half of the interviewed group brought up exits in conversation, with several participants describing how ESG and impact considerations shape exit planning and potential buyer alignment. Participant 4 shared, “ESG support is with the exit in mind.” When responding to follow-up questions on whether impact can survive the exit or questions surrounding mission drift, participants often emphasized that in many cases, the impact proposition remains steady after the exit because it is so linked to products and services that scale in lockstep as the company grows. A PE investor of an Article 9 fund also provided the realistic context: “In the current market, we are not in a position of picking from various impact buyers, but often impact is so tied to the business offering it will inherently scale with the business” (P12). Exit-oriented ESG strategic work prevailed with early preparation when public listings are the target. For a PE fund in Sweden, notably a part of the EU, “Knowing the IPO requirements, we work to get portco [portfolio companies] started on their ESG reports early on” to try to align with frameworks like the CSRD that become a requirement for public companies (P4).

4.3.3 Operational Engineering

Operational engineering comprises the non-financial capabilities, resources, and functional expertise that investors deploy to support portfolio companies. Across the interviews, operational engineering surfaced as a significant channel through which impact and ESG integration happens in practice, with 56% of participants highlighting the deployment of ESG specialists (A), 69% emphasizing capacity for measurement and reporting (B), and 75% referencing ESG enabled operational improvements related to inefficiency, competitiveness, regulatory readiness, and risk mitigation (C).

(A) The majority of participants described using dedicated internal or external specialists to support portfolio companies with matters such as regulatory alignment, sustainability reporting, net zero modeling, supply chain assessments, climate risk analysis, and ESG rating preparation. As one investor noted, “We set different management systems for impact and its strategic

considerations, and ESG on more on the operating level" (P12). On the topic of supply chain management and working to improve labor conditions, a serial acquirer shared the importance of sustained collaboration with partners. He highlighted that it is easy to obtain "the right documents or policies," but to improve what happens behind the scenes, long-term engagement is needed (P14).

(B) A significant share of interviewees discussed building portfolio company capabilities in KPI measurement, sustainability, reporting, and risk management systems to inform decision-making better. Participants also highlighted the increasing sophistication of internal teams of more mature companies. A sustainability associate director of an Article 8 PE fund shared we "have various in-house experts but are increasingly seeing our entire portfolio teams are quite skilled and especially equipped for strategic direction" (P2). For younger companies, several references were made to upskilling and talent incubators (P12, 13). As noted previously, various participants mentioned companies being "stuck with" (P9) or "caught in" reporting (P13). A CEO of a sustainability consultancy attributed this to limited access to robust IT systems and data infrastructure (P9).

(C) 75% of participants also described how impact and ESG considerations shape operational improvement and cost efficiency, process optimization, talent attraction and retention, regulatory advantage, and risk management. Regulatory engagement surfaced repeatedly as a core theme emphasizing how "regulation can be the biggest risk or opportunity" (P5) and that "working a lot with regulators and governments [is a] very important collaboration" (P4). Several others identified the operational deployment of impact and ESG as a driver for competitive advantage and brand value. They also noted that thematic positioning and identifying the right customer or operational stakeholders can arise through network effects. For example, Participant 6 stated: "A big help for companies is simply getting them to the key introduction faster."

4.3.4 Additional Aggregate Dimensions

While many of the added levers aligned closely with one of the three engineering categories in the preexisting framework, several other themes emerged that cut across these categories. Two of the most salient cross-cutting dimensions were regulatory considerations and the need to adapt impact and ESG engineering approaches in VC contexts.

Regulation, particularly SFDR and CSRD, emerged as a powerful force shaping investor practices, both in a catalytic and constraining nature. Across interviews, regulation was experienced in three distinct ways.

1. **Regulation as Structuring and Professionalizing.** Participants widely agreed that regulation pushes funds and portfolio companies to clarify methodologies and improve transparency. When thinking about preparing a portfolio company for an IPO, several EU-based investors alluded to needing to start with CSRD alignment early on (P4, 12, 14). More generally, others felt CSRD created a “sense of urgency” and helped focus attention on getting ahead (P14).
2. **Regulation as Burdensome, Ambiguous, and Misaligned with Investment and Impact Value Creation.** Participants also argued that regulation can pull portfolio companies into excessive reporting work, diverting time away from material value creation levers. Some described companies being “stuck with reporting” or “caught in reporting” (P9, 13) and this is of especially concern for smaller and growing teams with limited bandwidth. Importantly, regulation was also described as misaligned with certain impact- or ESG-driven investment pathways. Specifically in the EU, one Article 8 investor reflected on her prior role in an Article 9 fund, explaining that the Article 9 requirements negatively impact the ability of investors to invest in “ESG improvement” cases, where facilitating transformation in some less mature ESG companies could result in meaningful positive impact generated.
3. **Regulation as Market-Shaping.** Participants also considered regulation as a powerful market accelerator or bottleneck. As mentioned, one investor pointed out that “regulation can be the biggest risk or opportunity” (P5) and another described how engagement with regulators is critical for facilitating their portfolio companies’ growth, especially in emerging sectors. More broadly, regulation was seen as shaping lender and investor expectations, enhancing the credibility of sustainability claims, and increasing the commercial value of ESG maturity, particularly in exit contexts. This becomes more evident when speaking with investors and practitioners based in the EU. Along these lines an Article 8 VC investment manager with experience working both in US and the Nordics, summarized simply, the “EU does a better job of pricing in externalities” (P11).

As it relates to the specific impact and ESG considerations that come with VC, one VC investor participant mentioned that they hold relatively small ownership stakes, “typically 5-10%” yet still find that they can have a meaningful influence (P6). Another participant highlighted how their influence, in relation to implementing ESG and impact value creation, depends on whether priorities of their other co-investors are similarly aligned (P15).

Because early-stage companies operate with limited resources and capacity, participants emphasized the need for creative and highly tailored engagement approaches. Several participants noted that formal governance mechanisms for VC differ from those in PE. As one explained, board seats are not always necessary or even useful, and in some cases, an industry expert on the board could be more useful than adding multiple investors (P8). Participants shared that operational readiness also varies considerably where some early-stage companies “do not even have a CFO yet”, requiring investors to “lead with pragmatism” (P11). As a result, expectations for ESG action plans scale with maturity, where more developed companies might manage five or six actions per year, while young companies may handle one or two (P12). Another participant similarly shared, that larger companies activate more value creation levers (P13). One firm described an alternative approach in which ESG maturity expectations and the number of required actions are tied not to the company size, but to the investor holding period length, enabling the investor to meet each portfolio company where they are at entry and scale expectations appropriately over time (P15). Overall, the findings demonstrated that impact and ESG engineering among VC investors tends to adopt adaptive, capacity-building, and collaborative approaches, reflecting early-stage constraints and the smaller ownership stakes typical of VC investing.

4.3.5 Reflexive Positioning

The researcher interpreted these themes as reflecting a field in transition. ESG and impact investing are not stable categories but contested, negotiated, and socially constructed concepts. Investors toggled between regulatory compliance, founder-friendly pragmatism, and genuine ambitions for transformative impact. Across narratives, ESG appeared as the language of institutional conformity, while impact served as the language of aspirational identity. Exit strategy functioned as the gravitational force pulling these logics together, forcing coherence where earlier ambiguity had been tolerated.

This reflexive interpretation recognizes: (a) the socially situated beliefs of interviewees, (b) the influence of their organizational cultures, (c) the emergent nature of PE and VC markets, and (d) the prevailing sentiments surrounding ESG. Thus, the researcher's interpretive stance is that impact is co-produced through investor–company relationships rather than discovered as an objective property. The researcher also recognizes the potential bias stemming from approximately seven years of professional experience in ESG and impact investing, including the last several years developing and facilitating an ESG value creation strategy for a scale-up acquired by a PE investor through an Article 8 fund.

5. DISCUSSION

The findings of this qualitative study indicated that integrating impact and ESG into PE value creation processes meaningfully augments Kaplan and Strömberg's (2009) framework. Rather than constituting a fourth, separate horizontal value creation lever, the practices and perspectives emerging from the interviews revealed a set of vertical impact and ESG engineering capabilities that reshape financial, governance, and operational engineering. These capabilities introduce new financial advantages, mechanisms for regulatory alignment, strategic steering tools, and opportunities for operational improvement. They also encourage investors to adopt a complementary toolkit that includes the practical implementation of theory of change and materiality assessments, as well as benchmarking and evaluation processes to identify and track relevant ESG KPIs, while also expanding access to financial instruments and unlocking operational improvements to fully realize potential of impact and ESG engineering.

5.1 Areas of Convergence and Divergence Across Literature and Interview Findings

The discussion compares the insights from the literature review with the prevailing findings from the interviews, highlighting areas of convergence and divergence across the three traditional value creation engineering levers outlined by Kaplan and Strömberg (2009). A high-level mapping of these comparisons is provided in Appendix 8.2.

5.1.1 Financial Engineering

The interview findings reinforced and extended the academic literature identifying ESG disclosure as a material determinant of firms' financing conditions. While the literature distinguished between ESG performance and disclosure, participants consistently emphasized portfolio companies' ESG or impact narrative, supplemented with supporting data, as a primary mechanism for reducing perceived risk and strengthening lender confidence. This practical framing aligns with research showing that disclosure, particularly around material risks, mitigation frameworks, and forward-looking commitments, can shape credit assessment and borrowing terms as much as, and sometimes more than, underlying ESG performance (Eliwa et al., 2021). Previous research also highlighted how strengthened disclosure helps close information asymmetries (Eliwa et al., 2021; He et al., 2023), which is especially relevant for private and often smaller portfolio companies held by PE investors, where transparency is typically lower. Consistent with academic findings, investor participants alluded to securing more favorable borrowing terms by supporting portfolio companies in prioritizing focused and credible ESG-related disclosure material.

Although Eliwa et al. (2021) found that the effects of ESG performance and disclosure on the cost of debt are more pronounced in more stakeholder-oriented countries, such as Denmark, where lenders place greater weight on community and long-term stakeholder considerations, participants in this study did not explicitly reference tailoring financing strategies across operating geographies. Notably, this could be due to most participants operating primarily in Nordic markets, where stakeholder orientation is relatively high, and ESG expectations are likely already institutionalized. Nevertheless, this divergence may suggest an area where practice may be less developed than theoretical expectations.

From the literature reviewed, sustainability-linked financing offers several potential avenues for value creation for PE investors, including preparing portfolio companies to meet eligibility thresholds, identifying instruments that generate meaningful basis-point savings from credible sustainability KPIs, and leveraging the signaling benefits of issuance, particularly near exit. Interviewees partially reinforced the signaling dimension, noting that sustainability-linked instruments can enhance portfolio company credibility and perceived maturity, while emphasizing that internal development costs must be considered in the context of marginal borrowing cost reduction. Participants clarified that their portfolio companies would only consider pursuing sustainability-linked loans and green loans rather than bonds, and that GSSS instruments are likely

out of reach for smaller VC-backed companies that are earlier in their impact and ESG maturity. In parallel with academic considerations, participants highlighted how investors can support portfolio companies in assessing verification requirements and avoiding green- or sustainability-washing exposure, with PE owners advising that GSSS issuance should be pursued only when it is both financially advantageous and operationally realistic.

The role of blended finance mechanisms is a theme that extends financial engineering but does not clearly appear in the context of traditional return-seeking PE academic and practitioner literature. Half of the participants indicated awareness of, or engagement with tools such as technical assistance facilities, grants, and insurance-based mechanisms, and other catalytic funding partnerships as occasionally relevant to enabling impact or improving capital access. Interviewees distinguished these instruments, noting that technical assistance is typically used for capacity building or solving context-specific challenges, whereas grants were viewed as mechanisms for direct, non-dilutive financial transfers. Along these lines, some participants viewed blended finance as more in the realm of philanthropy, but others disagreed and instead viewed blended finance options as available tools that can support early-stage capacity building, reduce scaling frictions, and enable financial support for companies not yet ready for commercial debt. Overall, these insights suggest that while blended finance is not a mainstream lever in commercial PE practice, it can potentially complement financial engineering for funds operating in impact-oriented or emerging-market contexts.

5.1.2 Governance Engineering

The interview findings strongly reinforced the governance engineering related literature, which argues that integrating impact and ESG requires more than adding metrics; instead, it involves shaping strategic expectations, aligning management around dual financial and stakeholder objectives, and embedding ESG into value-creation plans. Participants consistently described providing strategic leadership by positioning impact and ESG as commercial levers for growth, customer value, and competitive differentiation, rather than merely a compliance exercise, closely mirroring academic discussions of institutional logics and mindset shaping. In practice, investors operationalized these concepts through focused materiality assessments, theory of change mapping, and related frameworks, and benchmark analyses to determine which ESG

priorities were financially meaningful and thereby translate abstract intentions into concrete decision-making and action.

The findings further validated and extended the literature's emphasis on road mapping, KPI governance, and structured performance management. Participants described integrating impact- and ESG-related KPIs directly into value creation plans and using them to monitor strategic progress, extending mechanisms already present in Kaplan's and Strömberg's (2009) value-creating governance model. The importance of utilizing active ownership within governance engineering aligns with Kölbel et al.'s (2020) emphasis on engagement as the most reliable and empirically proven mechanism for investor impact.

Although existing research notes that explicit impact- and ESG-linked incentive systems remain rare, several participants described linking remuneration to ESG performance, including carried interest structures tied to achieving a certain percentage of a previously set impact target (P7). This suggests that while academic literature identifies a gap, parts of the market are beginning to experiment with impact- and ESG-linked incentives.

Similarly, participants provided concrete examples of formalizing ESG governance structures, such as appointing sustainability leads, creating ESG steering committees, and institutionalizing board-level ESG reporting and follow-up. These developments reflect the literature's expectation that governance engineering must extend to incorporate new structures that support strategic execution. Taken together, the interview findings showed that while the overall aim of practice, as reflected in the participant interviews, largely aligned with academic literature, investors are beginning to operationalize impact and ESG governance in more systematic ways, revealing both progress and an ongoing need for research on how these mechanisms influence long-term performance and exit outcomes.

5.1.3 Operational Engineering

The interview findings strongly reinforced the fundamental premise of operational engineering as articulated by Kaplan and Strömberg (2009), that PE creates value not only through capital structure or governance rights, but through the deployment of non-financial expertise, resources, and support systems that enhance portfolio company performance. When considered through this lens, participants' descriptions of ESG and impact work reflect a clear expansion of

operational engineering into new functional domains related to sustainability, ESG data, and regulation.

Across interviews, investors emphasized the active deployment of dedicated ESG and impact specialists, external consultants, and platform tools to support portfolio companies with regulatory alignment, sustainability reporting, carbon and net zero modeling, supply chain assessments, climate risk assessments, and ESG rating preparation. This directly maps onto the operational logic whereby investors provide expert capabilities that would otherwise be unavailable to, or underdeveloped within, the portfolio companies. It also echoes scholarly arguments that PE is uniquely positioned to build organizational and managerial foundations necessary for ESG integration (Crifo & Forget, 2015; Long & Johnston, 2023). In this sense, investors' use of ESG expertise constitutes a contemporary extension of the traditional operational engineering toolkit.

The interviews showed that investors are actively building portfolio company capacity for KPI measurement, reporting systems, and risk management in ways consistent with traditional operational engineering. However, participants also highlighted a challenge largely missing from the literature: many companies are increasingly caught in, or constrained by, reporting (P9, P13). As a result, investors must not only strengthen systems but also triage reporting demands, prioritize material issues, and prevent compliance work from overtaking value creation. This practical tension between capacity building and reporting fatigue is not well addressed in current frameworks. Participants also described ESG-enabled operational improvements tied directly to efficiency gains, cost reductions in risk mitigation, while extending this view by framing ESG as a commercial differentiator contributing to brand value, customer acquisition, and competitiveness, shifting ESG from a pure risk-management lens to a proactive value creation lever, mirroring existing research.

The most distinctive divergence from the literature was the emphasis on regulatory advantage as a core operational engineering extension, often warranting external support. Rather than treating regulation as a constraint, investors described various requirements as areas where proactive alignment can lower future compliance costs, increase buyer readiness, and shape market positioning. For some, “regulation can be the biggest risk or opportunity” (P5) and working with regulators has become part of operational strategy (P4). This reframes the provision of expertise

needed to facilitate regulatory preparedness and advantage within portfolio companies as a form of operational engineering, an extension not yet fully captured in traditional theory.

6. CONCLUSION

This thesis concludes that impact and ESG reinforce classical PE value creation levers, enable multi-capital outcomes, and strengthen exit positioning. By augmenting financial, governance, and operational engineering, these impact- and ESG- enabled mechanisms introduce practical tools such as ESG-integrated KPIs, board-level governance mechanisms, and structured sustainability roadmaps that enhance value creation throughout the ownership period. The findings highlighted both theoretical contributions and tangible, real-world implications for practitioners seeking to steer more impactful progress within their portfolios. Together, these insights underscore the growing importance of impact and ESG engineering as complementary dimensions within PE's evolving value creation paradigm.

6.1 Limitations and Future Research Directions

While this thesis offers new insights into how impact and ESG can be integrated into PE value creation processes, several implications present opportunities for further research. First, while ESG and impact momentum has significantly increased over the past decade and generated a substantial body of academic and practitioner research, in recent years, there has been a pronounced backlash. This is particularly evident in the United States, where one participant based there proclaimed, "Impact investing is under attack." This shift has outpaced current academic research, creating opportunities to examine whether and how PE investors adapt their fund strategies or priorities.

Second, although the literature review and interview sample were diverse in terms of geography and investment strategy (e.g., Article 8 and 9 funds, traditional PE, VC, serial acquirer models, and sustainability consultancies), they did not allow for systematic comparison across these categories. Further research should examine how impact and ESG engineering vary across different PE strategies, fund mandates, and maturity stages, including how these differences influence the feasibility of tools such as sustainability-linked financing, theory of change frameworks, or catalytic funding. Notably, while writing this thesis, SFDR 2.0 was leaked, and on 19 November 2025, the European Commission formally proposed a set of amendments (2025). This proposal signals a shift towards requiring relevant funds to articulate and substantiate a theory

of change. SFDR 2.0 also introduces a new transitional fund category, which addresses criticism raised by Participant 5 that Article 9 funds do not enable impactful investing in “ESG improvement” cases.

Third, several interview conversations revealed unresolved questions about the optimal organizational positioning of ESG functions within portfolio companies. Participants highlighted uncertainties regarding appropriate reporting lines for ESG functions and their organizational integration within portfolio companies. This uncertainty points to a broader gap in the literature regarding how governance structure influences ESG and impact credibility, resource allocation, and integration with financial and operational decision-making. Future research should further examine which reporting lines, in specific contexts, enhance or inhibit ESG adoption, accountability, and value creation, and could therefore inform PE firms how to steer these suggestions across their portfolios.

Fourth, while the literature conceptualizes the theory of change as a foundational and regulatory component of impact management, practitioners emphasize its implementation in practice and the use of different frameworks and varying approaches. Future work could develop more standardized methods and clearer examples for the effective implementation of the theory of change across value creation plans, KPI systems, and board reporting.

Finally, the interviews highlighted the emerging use of blended finance, including catalytic and technical assistance facilities, within commercial PE and VC settings. These instruments were often framed in the literature as developmental finance mechanisms, yet the interview evidence suggested that practitioners increasingly view them as pragmatic instruments for accelerating support for portfolio company impact growth and measurement efforts. Future research could explore whether this emerging indication constitutes a broader trend and how catalytic capital interacts with commercial value creation, including the circumstances under which it is best used.

Together, these areas represent promising avenues for advancing both theory and practice. Continued research triangulating practitioner insights, regulatory developments, and empirical financial outcomes will be critical to redefining how impact and ESG engineering can be operationalized more effectively within PE’s evolving value creation paradigm.

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8. APPENDIX

8.1 Interview Reference List of Questions

Theme	Interview Questions
A. Identifying ESG Opportunities	A1. When you first acquire a company, how do you identify ESG-related value creation opportunities? Do you use diagnostics, benchmarks, or structured assessments? (Double) materiality? A2. Do you treat ESG opportunities differently by sector (e.g., industrials vs tech vs consumer)? A3. Can you share an example of an ESG lever that created a new revenue stream or market opportunity?
B. Embedding into Strategy & Operations	B1. How do you prioritize ESG initiatives during your holding period? B2. Who is accountable for ESG delivery within the portfolio company, and how do you align management incentives? B3. Do you integrate ESG KPIs into the 100-day plan or transformation agenda? If yes, what kinds of metrics have proven most impactful? B4. To what extent do ESG initiatives overlap with traditional operational efficiency measures (e.g., energy cost reduction, supply chain resilience)?
C. Financial Linkage & Value Capture	C1. How do you quantify the financial impact of ESG initiatives (e.g., cost savings, revenue uplift, risk-adjusted valuation)? C2. Can you point to cases where ESG materially improved EBITDA or valuation multiples? C3. How do you avoid ESG being treated as “soft” or non-core compared to other value creation levers? C4. Have you seen ESG efforts create competitive advantage in customer acquisition, contracts, or procurement?

D. ESG-Specific Levers	D1. Which types of ESG initiatives create the most tangible value: Environmental (e.g., decarbonization, energy efficiency, waste reduction)? Social (e.g., workforce engagement, DEI, supply chain standards)? Governance (e.g., risk management, board oversight, transparency)? D2. How do you approach innovation-driven ESG value creation (e.g., launching new sustainable products, entering green markets)? D3. Have you seen ESG accelerate other operational priorities?
E. Implementation Challenges & Trade-offs	E1. What are the most common barriers to implementing ESG initiatives in portfolio companies (e.g., data gaps, costs, cultural resistance)? E2. Have you faced trade-offs between short-term financial targets and long-term ESG initiatives? How do you resolve them? E3. What are the risks of overinvesting in ESG relative to the holding period and exit strategy?
F. Internal vs External Influences	F1. To what extent do LP expectations drive ESG value creation versus your own conviction? F2. How do buyer expectations at exit shape ESG priorities during ownership? F3. Do you collaborate with external partners (consultants, auditors, industry initiatives) to engineer ESG transformation, or is it managed in-house?

G. Measuring and Communicating Success	G1. Which ESG metrics or disclosures resonate most with buyers? G2. How do you ensure ESG achievements are credible and not perceived as greenwashing at exit? G3. How do you build ESG performance into company narratives and equity stories presented to buyers or IPO investors?
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8.2 Mapping Literature and Interview Findings for Impact and ESG Engineering

Literature Review Findings	Interview Findings
Financial Engineering 2.4.1 Reducing Borrowing Costs through Facilitating ESG Disclosure 2.4.2 Enabling Access and Navigating Sustainability-Linked Financing Instruments	A. Strengthen the impact and ESG narrative with corresponding data transparency to reduce perceived risk, enhance credibility, and expand access to capital. B. Facilitate securing sustainability-linked loans and green financing instruments by improving relevant ESG KPIs to decrease borrowing rates and strengthen the signaling of sustainability commitment to lenders and the market. C. Support the use of impact-oriented capital structures, such as blended finance or more patient capital models that enable longer-term, inclusive value creation. These approaches create non-dilutive funding opportunities, including various types of grants as well as technical assistance facilities provided by development banks.
Governance Engineering 2.5.1 Establishing ESG-Aligned Strategic Mindsets and Managerial Expectations 2.5.2 Structuring ESG Strategy: Road Mapping, KPI Setting,	A. Provide strategic leadership by positioning impact and ESG as levers for growth, competitive differentiation, and long-term resilience. This includes supporting impact scaling within core business, enabling market creation through new products and services, and enhancing brand and customer value. B. Use materiality assessment and benchmark analysis together with the theory of change to identify financially and strategically relevant ESG priorities and clarify how the portfolio company's

and Performance Management 2.5.3 Steering Impact and ESG-Enabled Exit Readiness	activities lead to desired outcomes and impacts. This approach guides the selection of KPIs aligned with the most value-creating sustainability objectives. C. Integrate impact and ESG KPIs into business and value creation plans, while also linking performance against these KPI targets to remuneration structures such as bonuses, carried interest payouts, and other incentive schemes. D. Formalize ESG governance structures through designating or hiring sustainability leads, creating ESG steering committees, and instituting board-level updates, reporting, and oversight. E. Embed stakeholder and diversity considerations into governance decision-making to ensure a wider range of perspectives informs risk and opportunity assessments and strengthens overall decision quality. F. Steer superior exits by cultivating a growing network of aligned buyers early on that are increasingly interested in sustainable businesses and evident impact outcomes. When preparing a portfolio company for a public exit, it is necessary to anticipate and address the varying ESG-related requirements associated with certain IPO processes.
Operational Engineering 2.6.1 Building Capability and Organizational Development for ESG Integration 2.6.2 Facilitating ESG-Driven Operational Efficiency, Cost	A. Deploy dedicated impact and ESG teams, complemented by external specialists and platform tools to provide functional support in areas such as regulatory alignment, sustainability reporting, carbon and net zero modelling, supply chain management, climate risk assessments, and ESG rating analysis. B. Build organizational capacity for KPI measurement, reporting systems, and risk management across portfolio companies to enable improved methodologies, higher quality data, and more informed decision making. C. Orient impact- and ESG-enabled operational improvements to achieve efficiency gains through cost savings and process optimization, enhance

Reduction, and Risk
Mitigation

competitive positioning by attracting talent and customers, and mitigate key operational and reputational risks. A parallel priority is to strengthen regulatory advantage by staying ahead of emerging requirements and building stakeholder and government relationships.

8.3 Ethical Use of AI

In line with SSE's *Guidelines for Students Regarding Generative AI (Artificial Intelligence) and Thesis Writing*, I used ChatGPT as a tool for brainstorming in early stages of research to explore additional dimensions and uncover useful sources, but not as a basis for analysis. In the revision stage, various tools, such as ChatGPT and Grammarly, were used for spell-checking, grammar support, and to provide feedback to improve structure and clarity. All input from AI tools was critically considered, adapted, and revised to maintain full ownership. Overall, this process involved using AI in line with the SSE guidelines "as a supportive role in the research, writing and feedback, process of thesis writing" but did not replace independent work, all the while maintaining ethical and academic integrity.