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Do ESG Concerns Improve ESG Performance

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## Abstract (Deutsch)

Diese Masterarbeit untersucht, unter welchen Bedingungen die ESG-Concerns von Investoren zu einem wirksamen Einfluss auf Unternehmensentscheidungen führen und dadurch die ESG-Performance von Unternehmen verbessern können. Ausgangspunkt ist die Beobachtung, dass ESG-Präferenzen in Kapitalmärkten zwar zunehmend sichtbar werden, etwa über Kapitalallokation und Preiswirkungen, daraus jedoch nicht automatisch ein realer Einfluss auf Unternehmensebene folgt. Die zentrale Frage lautet daher, unter welchen Bedingungen Investorenpräferenzen tatsächlich in wirksame Unternehmensbeeinflussung übersetzt werden.

Zur Beantwortung dieser Frage entwickelt die Arbeit einen modelltheoretischen Rahmen auf Basis von Friedman & Heinle (2020) und ordnet ihn in die Literatur zu ESG-Management, Sustainable Investing, Shareholder Activism und Financial Intermediation ein. Die Analyse zeigt, dass atomistische Investoren ohne Intermediär trotz bestehender ESG-Präferenzen keinen wirksamen Einfluss ausüben, da die privaten Kosten der Einflussnahme den privaten Nutzen übersteigen. Ein Finanzintermediär, der Kapital und Stimmrechte bündelt, kann dieses ursprüngliche Free-Rider-Problem grundsätzlich überwinden, sodass ESG-Concerns in Unternehmensentscheidungen und Aktienpreise eingehen. Wird die Delegation jedoch endogenisiert, entsteht ein weiteres Free-Rider-Problem, da auch nicht delegierende Investoren von der Einflussnahme des Intermediärs profitieren. Dadurch wird die Delegation begrenzt und ohne zusätzliche Friktionen sogar untergraben. Die Wirksamkeit von ESG-Concerns hängt somit von spezifischen institutionellen und ökonomischen Bedingungen ab, insbesondere von Intermediären, Delegationsanreizen, Präferenzangleichung und Mechanismen, die kostspielige Einflussnahme ökonomisieren.

Die Arbeit leistet damit einen theoretischen Beitrag zum Verständnis, wann ESG-Concerns auf reine Kapitalmarktallokation beschränkt bleiben und wann sie zu wirksamem Einfluss auf Unternehmensebene werden.

## Abstract (English)

This thesis examines under which conditions investors' ESG concerns can exert an effective influence on corporate decisions and thereby improve firms' ESG performance. While ESG preferences are increasingly reflected in capital allocation and asset prices, this does not automatically imply real influence at the firm level. The central question is therefore under which conditions investor preferences are translated into effective corporate influence.

To address this question, the thesis develops a theoretical framework based on Friedman and Heinle (2020) and relates it to the literature on ESG management, sustainable investing, shareholder activism, and financial intermediation. The analysis shows that atomistic investors cannot effectively influence corporate decisions without an intermediary, because the private costs of influence exceed the private benefits. A financial intermediary that bundles capital and voting rights can, in principle, overcome this initial free-rider problem, so that ESG concerns become reflected in both corporate actions and stock prices. Once delegation is endogenized, however, a second free-rider problem emerges, as even non-delegating investors benefit from the intermediary's influence. This limits delegation and, in the absence of additional friction, can even undermine it entirely. The effectiveness of ESG concerns therefore depends on specific institutional and economic conditions, in particular the presence of intermediaries, incentives to delegate, preference alignment, and mechanisms that economize on costly influence activities.

The thesis thus contributes to a more precise theoretical understanding of when ESG concerns remain confined to capital market allocation and when they translate into effective influence at the corporate level.

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## List of Abbreviations

| | |
|---|---|
| CARA | Constant Absolute Risk Aversion |
| $CO_2$ | Carbon Dioxide |
| CSR | Corporate Social Responsibility |
| CSRD | Corporate Sustainability Reporting Directive |
| ESG | Environmental, Social, and Governance |
| ESRS | European Sustainability Reporting Standards |
| OECD | Organisation for Economic Co-operation and Development |
| PAI | Principal Adverse Impacts |
| RTS | Regulatory Technical Standards |
| SEC | Securities and Exchange Commission |
| SFDR | Sustainable Finance Disclosure Regulation |

# 1. Introduction

Over time, sustainable investing has evolved from a specialized niche into an integral part of modern capital markets. Considerations related to the three sustainability dimensions environmental, social, and governance (ESG) are no longer merely peripheral or supplementary criteria but have become a standard component of investment decisions. Investors do not use ESG information solely for normative reasons, but also because they regard it as relevant for investment performance, risk assessment, product strategy, and market demand. Some investors even appear willing to forgo certain financial advantages in favor of their sustainability preferences. ESG-oriented investing is thus based not exclusively on return expectations, but also on the values held by investors (Riedl & Smeets, 2017). In addition, sustainability is increasingly assessed and priced in capital markets and therefore has clear economic consequences. Investors react with significant inflows or outflows of capital when funds are classified as strong or weak in terms of sustainability (Hartzmark & Sussman, 2019). Climate-related risks are increasingly understood as economic risks because they may affect future cash flows, operating costs, corporate valuations, the cost of capital, and stock prices in financial markets. Sustainability issues are therefore increasingly treated as a distinct valuation and risk dimension in capital markets (Stroebel & Wurgler, 2021). For the present study, this implies as a starting point that ESG concerns do exist on the investor side, are observable in capital markets, and can, at least in principle, become relevant for corporate decisions.

However, the mere existence of ESG concerns among investors does not automatically imply changes in corporate behavior or measurable improvements in a firm's ESG performance. There is a distinct transmission problem between investor preferences and actual corporate decisions: before such preferences can affect firms at the corporate level, they must first be translated into effective influence. While capital may flow specifically into more sustainable firms, this does not yet imply a causal effect on corporate decisions. Sustainability-oriented investing can therefore be observed relatively easily through allocation effects, but these effects do not necessarily coincide with real changes in corporate behavior. The key issue is therefore not whether ESG preferences exist, but whether and under which conditions they can be translated into effective corporate influence (Heath et al., 2023). This distinction between observable capital market effects and actual influence on managerial decision-making is central to the present study.

Taken as a whole, the existing literature suggests that ESG concerns raised by investors can be relevant for corporate outcomes, but that their impact is conditional rather than automatic. Under certain circumstances, shareholder engagement is associated with better ESG-related outcomes, yet observable sustainability effects cannot simply be taken as proof of causal influence at the corporate level. The literature therefore points to neither a general lack of effectiveness nor to automatic effectiveness. Instead, it suggests that the relationship between investor preferences and the ESG performance of the target company depends on the institutional and economic conditions under which investor influence is exercised (Dyck et al., 2019; Barko et al., 2022; Heath et al., 2023). This question of effectiveness is

particularly relevant when investor influence is exercised through financial intermediaries. In modern capital markets, many investors do not interact directly with firms but instead invest through funds and other intermediaries that pool capital and voting rights. These intermediaries may therefore play a decisive role in determining whether ESG concerns remain merely reflected in portfolio allocation or become effective at the corporate level (Friedman & Heinle, 2020).

This is precisely where the relevance of the present study begins. If ESG concerns are observable in financial markets but their impact at the corporate level remains unclear, the central question is under which specific conditions such concerns become effective. The overarching question is therefore whether ESG concerns can, in principle, improve a company's ESG performance at all. However, since the existing literature makes clear that this question cannot be answered with a simple yes or no, the analytical focus of this thesis is more specific: Under what conditions do ESG concerns exert an effective influence on corporate decisions and thereby lead to an improvement in ESG performance? The title of this thesis thus reflects the broader question, while the scientific analysis focuses on the conditions that determine such effectiveness.

The aim of this research is not to test this question empirically, but rather to develop a model-based theoretical framework that systematically explains the transmission mechanism and the conditions under which it operates. The analysis focuses on the role of funds and financial intermediaries, as these entities can pool not only investors' capital but also voting rights and therefore potentially influence corporate decisions. In this way, the study contributes to a more precise understanding of when ESG concerns remain confined to capital allocation and when they translate into effective influence at the corporate level. More specifically, it seeks to explain through which mechanism and under which conditions firms must respond to ESG preferences in their corporate management, decision-making, and governance processes.

The remainder of this thesis is structured as follows. Chapter 2 develops the theoretical foundations by discussing ESG management and sustainable investing, shareholder activism, the role of financial intermediaries, and the relevant literature on shareholder influence. Chapter 3 then presents the model analysis. It first introduces the benchmark setting without an intermediary, then examines the case with an intermediary, endogenizes delegation, and finally extends the analysis to multiple firms and portfolio effects. The theoretical results are subsequently illustrated numerically and discussed regarding their practical implications for investors, firms, and regulators. The thesis concludes by outlining the main limitations of the analysis and summarizing the central findings.

## 2. Theoretical Foundations

This chapter provides the theoretical foundation for the subsequent model analysis. It clarifies the conceptual relevance of ESG management and sustainable investing, outlines the main channels through which stakeholders and shareholders can influence corporate decisions, and situates the present

study within the relevant literature. In this way, Chapter 2 prepares the analytical basis for examining the conditions under which ESG concerns become effective at the corporate level.

## 2.1 ESG Management and Sustainable Investing

The starting point for this theoretical foundation is ESG management and sustainable investing. Since the present thesis examines whether ESG concerns can improve ESG performance, it is first necessary to clarify how ESG considerations enter corporate and investment-related decision-making in the first place. The following section therefore introduces the conceptual relevance of the ESG dimensions and then turns to the main channels through which sustainability-related concerns may affect firms.

### 2.1.1 ESG Dimensions and their Relevance for Corporate Decisions

ESG criteria have become an integral part of how firms are evaluated by investors and other capital market participants. Their growing importance reflects a broader shift in the understanding of corporate performance, in which sustainability-related issues are no longer viewed solely as ethical considerations but increasingly as factors that may influence firms' long-term economic outcomes. Conceptually, ESG builds on earlier discussions of corporate social responsibility (CSR), which traditionally emphasized voluntary and often normative corporate engagement with social and environmental concerns (Bénabou & Tirole, 2010). In contrast to CSR, the ESG framework provides a more structured and decision-oriented approach that links sustainability-related considerations more directly to investment analysis and corporate decision-making.

A defining feature of ESG is its focus on operationalization and comparability. ESG criteria translate environmental, social, and governance aspects into categories that can be incorporated into valuation models, risk assessments, and strategic planning processes. Early initiatives such as the Who Cares Wins report by the United Nations Global Compact stressed that ESG factors should be understood as potential sources of both risks and opportunities for firms and investors, rather than as purely ethical add-ons to financial performance (UN Global Compact, 2004). This perspective has been reinforced by institutional contributions emphasizing that sustainability-related information may be financially material, particularly in the presence of regulatory uncertainty, reputational concerns, and long-term operational risks (OECD, 2017).

From a theoretical perspective, the increasing relevance of ESG is also consistent with a broader interpretation of shareholder objectives. While the classical view articulated by Friedman (1970) holds that firms should focus exclusively on profit or market value maximization within the boundaries of the law, this position implicitly assumes that profits and social or environmental externalities are separable and that regulation can efficiently correct any resulting distortions. Hart and Zingales (2017) challenge this assumption by arguing that such a separation is often unrealistic in practice. In many settings, firms generate financial returns while simultaneously imposing social or environmental costs that are not fully

corrected by regulation. Building on this insight, they propose that firms should be understood as maximizing shareholder welfare rather than market value alone. Shareholder welfare encompasses not only financial returns, but also shareholders' preferences regarding environmental and social outcomes. Under this perspective, ESG considerations enter corporate decision-making not as purely external constraints, but as part of the broader objectives shareholders may wish firms to pursue.

Overall, ESG can therefore be understood as an analytically grounded framework that connects sustainability-related concerns with economic decision-making without presupposing that all such considerations are inherently value-enhancing. Instead, ESG provides a structured way to account for risks, preferences, and institutional constraints that may shape corporate behavior over longer horizons.

Building on this conceptual understanding, the economic relevance of ESG becomes clearer when examining its three underlying dimensions in more detail. According to the Organisation for Economic Co-operation and Development (OECD) (2017), environmental, social, and governance factors capture distinct but interrelated aspects of corporate behavior that are relevant for assessing firms' long-term risks and opportunities. Environmental factors relate to a firm's impact on and exposure to ecological systems, social factors concern relationships with employees, customers, suppliers, and society at large, while governance factors describe the structures and processes through which corporate decisions are made and controlled.

Environmental factors are closely linked to firms' exposure to climate-related risks and regulatory transition dynamics. In this context, carbon emissions constitute a financially relevant risk factor that is increasingly priced in capital markets. Bolton and Kacperczyk (2021) provide empirical evidence that firms with higher carbon emissions exhibit higher expected stock returns, consistent with the presence of a carbon risk premium. This premium reflects investors' compensation for bearing exposure to climate-related transition risks, including future regulation, carbon pricing, and shifts in consumer demand. Carbon emissions are therefore not merely an environmental externality, but also a source of systematic financial risk that affects firms' cost of capital and investment decisions. The authors further show that both the level of emissions and changes in emissions over time are relevant for the pricing of carbon risk, and that this effect can be observed across all three emission scopes. While Scope 3 emissions are often more difficult to measure, they remain economically meaningful and contribute to firms' overall carbon risk exposure. Complementary evidence by Krueger, Sautner, and Starks (2020) suggests that institutional investors broadly view climate change as a financially material risk, particularly through transition and regulatory channels. At the same time, they document considerable heterogeneity in how investors assess and integrate these risks into investment decisions. From a corporate perspective, this implies that environmental concerns become particularly relevant when firms are exposed to climate-sensitive capital providers and transition-related financing pressures.

Social factors capture how firms manage their relationships with key stakeholder groups and are closely linked to reputational, legal, and operational risks. In contrast to environmental risks, the economic implications of social performance are often less continuously observable and tend to materialize

through discrete events. Krueger (2015) provides event-study evidence showing that firms experience significant negative stock market reactions following the public disclosure of adverse social events, such as labor disputes, product safety violations, or human rights controversies. These findings suggest that social factors become financially material when stakeholder conflicts translate into tangible economic consequences. A central theoretical reference for understanding this relationship is provided by Margolis and Walsh (2003). In their review of 127 empirical studies, the authors document a predominantly positive association between corporate social performance and financial performance, while also emphasizing that the relationship is neither uniform nor unconditional. This reflects a broader tension between addressing societal problems and maximizing shareholder value. From an instrumental perspective, social practices may generate economic benefits by reducing stakeholder conflicts, strengthening legitimacy, or limiting legal and reputational risks. From a normative perspective, firms may also be expected to engage in socially responsible behavior even in the absence of direct financial returns. In agency-theoretical terms, this implies that social initiatives may either represent value-preserving risk management or managerial discretion driven by private motives. Their economic relevance therefore depends on whether they address material stakeholder risks or instead remain weakly connected to firm fundamentals.

Governance factors play a distinct and central role within the ESG framework, as they shape the institutional conditions under which environmental and social considerations are translated into concrete corporate actions. Corporate governance determines how decisions are made, how managers are monitored, and how competing objectives are balanced within the firm. From an agency-theoretic perspective, governance mechanisms serve as disciplinary tools that align managerial behavior with shareholder interests and constrain opportunistic actions (Shleifer & Vishny, 1997). In this sense, governance structures affect not only the distribution of control rights, but also the credibility with which corporate objectives are implemented. In the ESG context, governance is therefore not merely one dimension among others, but a central enabling mechanism for whether environmental and social objectives are substantively integrated into corporate decision-making or remain symbolic. As emphasized by Tirole (2006), effective governance structures are essential when firms face multiple and potentially conflicting goals. Similarly, Bebchuk and Weisbach (2010) highlight that governance arrangements shape the extent to which shareholders can effectively express and implement their preferences through corporate policies. Applied to ESG, governance therefore determines whether shareholders' environmental and social concerns meaningfully affect firm behavior or are diluted by managerial agency problems.

While ESG considerations can be economically relevant, their impact on firm value and corporate decision-making is inherently ambiguous. Sustainability-related activities may contribute to value creation by reducing risk, improving operational efficiency, or strengthening stakeholder relationships. At the same time, ESG initiatives are not automatically value-enhancing and may also reflect managerial discretion rather than shareholder interests. This tension has been emphasized in the

literature, which distinguishes between ESG activities that address economically material risks and those that are primarily symbolic or driven by managerial self-interest (Krueger, 2015). Capital market reactions suggest that investors differentiate between substantive ESG actions with tangible economic implications and initiatives perceived as mere public relations or greenwashing.

From an agency-theoretic perspective, this ambiguity is particularly important. Managers may engage in sustainability initiatives for reputational reasons, personal preferences, or career concerns, even when these actions do not align with shareholders' objectives. Early work on corporate social initiatives highlights this potential conflict, noting that social engagement can create value when it mitigates relevant risks or improves stakeholder relations, but may also constitute an agency problem when it imposes costs without corresponding benefits (Margolis & Walsh, 2003). ESG considerations therefore introduce an additional layer of complexity into the principal–agent relationship rather than resolving it.

This ambivalence implies that the economic relevance of ESG cannot be assessed independently of the institutional and incentive structures within which corporate decisions are made. Whether ESG considerations lead to meaningful changes in firm behavior depends not only on environmental and social issues themselves, but also on the governance arrangements and external pressures that discipline managerial decision-making. ESG thus represents neither a purely normative concept nor a guaranteed source of value creation, but a set of considerations whose effects are conditional on incentives, monitoring, and enforcement mechanisms. If the relevance of ESG is therefore conditional on such structures, the key question becomes how sustainability-related preferences are transmitted into corporate decision-making. The following section examines the main channels through which stakeholders can exert such influence.

### 2.1.2 Stakeholder Influence

The economic relevance of ESG considerations does not arise automatically but depends on the mechanisms through which sustainability-related preferences are transmitted into corporate decision-making. Understanding ESG outcomes therefore requires an examination of the actors who exert influence on firms and the channels through which such influence is exercised. The following subsections review the main forms of stakeholder influence that shape how ESG-related considerations are incorporated into corporate decisions.

#### 2.1.2.1 Direct Regulations

One initial and direct way of implementing ESG considerations in corporate activities is through direct regulation. This refers to legally binding and enforceable requirements in the form of laws and regulations that prescribe specific actions for companies or restrict or prohibit certain actions. Compliance with these direct regulations is monitored and enforced through monitoring and sanctions.

In this context, direct means that the rules apply regardless of whether investors or consumers respond to ESG concerns and specify what a company must or must not do. Direct regulations therefore intervene directly in corporate decisions and influence investments, production processes, social practices, and governance structures (OECD, 2015).

A related but distinct regulatory channel concerns disclosure and reporting obligations. These rules require firms to publish standardized ESG-related information to increase transparency and enable monitoring by external stakeholders. Because their effects operate primarily through information and stakeholder responses rather than through direct constraints on corporate conduct, disclosure requirements are discussed separately in Section 2.1.2.2 in order to avoid conflating the two mechanisms (Tirole, 2006).

Historically, both CSR and later ESG were long characterized by voluntariness and self-commitment. Over time, however, this soft-law logic has increasingly shifted toward more formalized and enforceable requirements. This development matters because many ESG-related harms, such as environmental damage or human-rights violations, generate costs outside the firm and are therefore not fully reflected in market prices. Market discipline by investors or consumers alone may thus be insufficient, which creates a rational for direct regulation as a mechanism to internalize such externalities (Huang & Watson, 2015; Kitzmueller & Shimshack, 2012).

Direct regulation can take several forms. The first category is command-and-control regulation. This includes traditional behavioral rules such as standards, obligations, and prohibitions. The regulator specifies concrete limits or requirements, for example regarding emissions or technologies, and firms are required to comply with them. Corporate behavior is then shaped by the need to avoid non-compliance and sanction costs (Baldwin, Cave & Lodge, 2012).

A second category consists of market-based instruments, such as taxes, levies, tradable permits, or refund mechanisms. These instruments do not prescribe a single behavior directly, but they make ESG-relevant conduct economically costly or beneficial through price signals. Even though they operate through market incentives, they still qualify as direct regulation because they are legally binding and imposed by the regulator rather than emerging from voluntary market preferences (Stavins, 2003).

A third category includes process- and due-diligence-based obligations. These require firms to establish and apply procedures to identify, assess, prevent, mitigate, and remedy negative environmental and social impacts, particularly along their own operations and value chains. Their relevance is especially pronounced where ESG risks are complex, difficult to measure directly, or spread across multiple stages of production and sourcing. In such settings, regulation through fixed limits alone may be insufficient (Directive (EU) 2024/1760; Sinnig & Zetzsche, 2025). The practical effect of this type of regulation lies in forcing firms to internalize ESG concerns through management systems, responsibilities, documentation, and control procedures rather than treating them as isolated external issues (Kiewisch, 2025).

A fourth category consists of governance regulation. These rules shape internal decision rights, monitoring structures, and accountability within the firm. Unlike due-diligence obligations, which prescribe sustainability-related processes, governance regulation primarily targets how decisions are made and supervised inside the organization. It may require internal controls, reporting lines, audits, or clearly assigned responsibilities for risk, compliance, or sustainability-related issues. In this way, governance regulation reduces managerial discretion and increases the likelihood that ESG-related commitments are embedded in corporate decision-making rather than remaining symbolic (Baldwin, Cave & Lodge, 2012; Shleifer & Vishny, 1997).

Across all these approaches, the practical effectiveness of direct regulation depends less on the formal existence of the rule than on its stringency, scope, and, above all, credible monitoring and enforcement. Rules influence firms only when violations are likely to be detected and sanctioned with sufficient reliability. High audit probabilities, substantial penalties, and credible enforcement mechanisms are therefore central to whether regulation changes corporate behavior (Gray & Shimshack, 2011).

This logic can be illustrated by several examples. The European Union Emissions Trading System (EU ETS) represents a market-based form of direct regulation: firms must surrender allowances in proportion to their Carbon Dioxide ($CO_2$) emissions, and uncovered emissions trigger automatic monetary penalties (Directive 2003/87/EC). The Corporate Sustainability Due Diligence Directive, by contrast, represents a process-based form of direct regulation, as it imposes legally binding obligations on firms to identify and address negative environmental and human-rights impacts in their own operations and along relevant parts of the value chain (Directive (EU) 2024/1760). A governance-related example is Section 404 of the Sarbanes–Oxley Act, which requires management to assess the effectiveness of internal controls over financial reporting and auditors to attest this assessment, thereby strengthening internal accountability and limiting managerial discretion in reporting processes (Sarbanes–Oxley Act, 2002, § 404; 15 U.S.C. § 7262).

Taken together, direct regulation translates ESG-related concerns into enforceable constraints that firms must internalize in operations, processes, and governance rather than treating them as voluntary commitments (OECD, 2015). In practice, this operates mainly through compliance incentives: once monitoring and sanctions are credible, firms incorporate expected regulatory costs into their decisions and adjust behavior accordingly (Gray & Shimshack, 2011). At the same time, governance-oriented rules can limit managerial discretion by strengthening monitoring and accountability, thereby reducing the scope for merely symbolic sustainability action (Shleifer & Vishny, 1997). Because such rules can also reshape firms' risk exposure and expected cash flows, they may additionally influence financing conditions and thereby reinforce market-based discipline through a second channel (Bolton & Kacperczyk, 2021). In contrast, disclosure regimes do not directly constrain conduct but operate primarily through information provision and stakeholder responses. The next section therefore discusses disclosure requirements as a distinct mechanism of ESG influence.

#### 2.1.2.2 ESG Disclosures

While direct regulations directly restrict companies' behavior regarding ESG-related conduct, disclosure requirements affect firms more indirectly. Their central purpose is to reduce existing information asymmetries between companies and external stakeholders, especially investors, by making sustainability-related information systematically visible and comparable. In this way, disclosures create the informational basis for external monitoring, market discipline, and shareholder responses. They therefore operate as a distinct governance mechanism: rather than directly prescribing what firms must do, they shape how firms can be evaluated and disciplined by others (Tirole, 2006).

This channel is particularly relevant in the ESG context because sustainability-related risks and corporate ESG quality are often difficult for external investors to observe, assess, and verify. Without consistent disclosure, investment decisions may be based on incomplete, non-standardized, or even misleading information. As a result, capital allocation may fail to reward genuinely sustainable corporate conduct or to penalize firms with weak ESG performance. The effectiveness of disclosure therefore depends not merely on the quantity of information provided, but above all on its consistency, comparability, and credibility. Standardized disclosure regimes are especially important because they make sustainability-related information systematically usable for investment decisions and external monitoring (Christensen et al., 2021).

The European Union has developed a particularly comprehensive regulatory framework in this respect. On the side of financial market participants, the Sustainable Finance Disclosure Regulation (SFDR) requires firms such as asset managers and other financial market actors to disclose how they integrate sustainability risks into their investment decisions and whether and how they consider principal adverse impacts (PAI), that is, the most significant negative effects of investment decisions on environmental, social, and governance dimensions. These disclosures are made through website information, pre-contractual product documentation, and periodic reporting, thereby making ESG information more transparent and accessible to investors (Regulation (EU) 2019/2088).

The Regulatory Technical Standards (RTS) further operationalize the SFDR by specifying the content, methodology, and presentation of these disclosures. In particular, the RTS introduce standardized templates for pre-contractual and periodic product disclosures and provide a structured framework for reporting principal adverse impacts. This enhances the comparability of sustainable financial products and reduces the scope for vague or inconsistent sustainability claims, thereby also helping to address greenwashing concerns (Commission Delegated Regulation (EU) 2022/1288).

The EU Taxonomy complements this framework by providing a common basis for determining when economic activities qualify as environmentally sustainable. In addition, it specifies which taxonomy-related indicators firms must disclose, including whether activities are taxonomy-eligible and where the relevant criteria are fulfilled, taxonomy-aligned. This creates a more coherent informational basis that financial market participants can use when classifying and communicating the sustainability characteristics of investment products (Regulation (EU) 2020/852). For corporate taxonomy-related key

performance indicators, the relevant disclosure specifications are further detailed in Commission Delegated Regulation (EU) 2021/2178.

At the corporate level, sustainability-related reporting is significantly expanded by the Corporate Sustainability Reporting Directive (CSRD), which integrates ESG information more systematically into corporate reporting (Directive (EU) 2022/2464). The European Sustainability Reporting Standards (ESRS) further specify these requirements by defining the reporting standards according to which firms must disclose sustainability-related information (Commission Delegated Regulation (EU) 2023/2772). Together, the CSRD and ESRS strengthen the availability, comparability, and consistency of firm-level ESG data and thereby improve the informational basis on which investors, funds, and other stakeholders can assess corporate sustainability performance.

Once disclosure standards improve the availability, consistency, and comparability of sustainability-related information, this information can be translated into economic incentives for firms. Better disclosure enables investors to compare firms and financial products more effectively, to price ESG-related risks more accurately, and to identify cases in which sustainability claims are not supported by credible data. In this way, disclosure does not directly determine corporate conduct, but it strengthens the conditions under which market participants and shareholders can exert pressure on firms through investment decisions, engagement, and monitoring (Christensen et al., 2021).

Taken together, ESG disclosures constitute an indirect but central channel through which sustainability-related concerns can influence firms. By reducing information asymmetries and creating a more transparent and comparable information environment, disclosures make ESG-related risks and corporate conduct more visible to external stakeholders. They therefore do not replace direct regulation but complement it by enabling market-based discipline and more effective shareholder influence. This becomes particularly relevant in the context of shareholder activism, where standardized and credible ESG information provides the basis for monitoring, engagement, and demands toward management. The following section therefore turns to shareholder activism as a further channel through which ESG-related concerns may affect corporate decision-making.

#### 2.1.2.3 Shareholder Activism

In addition to direct regulation and disclosure requirements, shareholder activism constitutes another important external channel through which ESG concerns may affect corporate decisions. Shareholder activism can be understood as the effort by shareholders to influence a company's behavior by exercising their rights as owners (Goranova & Ryan, 2014). From an agency-theoretical perspective, it functions as a governance mechanism through which management can be disciplined, managerial discretion can be constrained, and corporate actions can be aligned more closely with shareholder interests (Shleifer & Vishny, 1997). In this way, shareholder activism provides a channel through which investors' ESG-related preferences may enter corporate decision-making.

In the ESG context, shareholder activism is closely linked to the disclosure channel discussed in Section 2.1.2.2. Standardized ESG reporting increases transparency and comparability and thereby improves the informational basis on which shareholders can monitor firms and formulate demands toward management. Disclosures thus do not themselves constitute activism, but they create an important precondition for it by reducing information asymmetries and enabling more informed engagement (Tirole, 2006). Empirical evidence by Eccles et al. (2014) further suggests that firms with a more integrated sustainability orientation often exhibit stronger governance structures, such as sustainability committees or more formalized stakeholder dialogue processes. This is consistent with the idea that external ESG concerns may be reflected in internal governance arrangements and thereby create an organizational basis for shareholder influence.

The normative relevance of shareholder activism in this setting can be linked to the extension of the shareholder value concept toward shareholder welfare. Hart and Zingales (2017) argue that firms should maximize not only market value, but the overall welfare of shareholders. This broader concept includes not only financial returns, but also shareholders' environmental and social preferences. Under this perspective, shareholder voting and engagement become relevant mechanisms through which these broader preferences can be expressed and translated into corporate policy. Similarly, Bénabou and Tirole (2010) describe how investors may, in effect, delegate their values to firms through ownership, an idea they refer to as delegated philanthropy. Shareholder activism becomes the mechanism through which such values are made visible, communicated to management, and translated into concrete demands.

This logic is reinforced by the possibility of what Hart and Zingales (2017) describe as "amoral drift." If ownership remains passive, profit-oriented incentives may dominate and push firms away from the broader preferences of shareholders. In such a setting, shareholder activism can serve as a corrective mechanism. Rather than simply divesting from firms with weak ESG performance, investors may choose to invest and engage in order to influence corporate conduct directly. This distinction is important because divestment may reduce the ownership share of ESG-oriented investors and thereby weaken pressure on the firm if the shares are acquired by investors who do not share these preferences. From this perspective, investing and engaging rather than divesting can be a more effective strategy for ESG-conscious investors who seek to influence firm behavior. This view is also consistent with the evidence provided by Krueger, Sautner, and Starks (2020), who identify engagement as a preferred strategic channel through which institutional investors respond to financially material climate risks. More generally, empirical evidence by Dimson et al. (2015) suggests that successful engagement can have real economic consequences, including improvements in governance, profitability, and risk.

At the same time, the effectiveness of shareholder activism is limited when investors act in isolation. Small shareholders may benefit from successful activism, but they bear the costs of engagement privately. This creates a collective-action problem that weakens the incentives for individual investors to become active. In this sense, the existence of ESG preferences alone is not sufficient to generate

effective corporate influence. Rather, the extent to which shareholder activism can affect ESG-related corporate decisions depends on whether these preferences can be coordinated and translated into effective action. To understand more precisely how shareholder activism has developed, through which forms it is exercised, and why financial intermediaries become central in overcoming these coordination problems, the next section examines shareholder activism in greater detail.

## 2.2 Shareholder Activism and Corporate Decision-Making

Shareholder activism represents a key channel through which investors can translate ESG concerns into corporate influence, complementing direct regulation and disclosure-based transparency. While Section 2.1.2.3 positioned activism at a conceptual level as an external mechanism to shape management and corporate decisions, a more detailed discussion is required to understand how activism is exercised, and under which conditions it becomes effective. Section 2.2 therefore examines shareholder activism in greater depth. It first outlines its historical development, then distinguishes its main forms, and finally analyzes the role of financial intermediaries in enabling, channeling, and constraining investor influence.

### 2.2.1 Historical Development

Shareholder activism has developed into an institutionalized governance mechanism over time. Its historical development can be traced through changing actors, instruments, and agendas.

The regulatory starting point was set in the United States in the 1930s, when the Securities and Exchange Commission (SEC) introduced the SEC Proxy Rules. These rules were intended to ensure that investors' voting rights were exercised in a fair and transparent manner. During the period from the 1930s to the 1970s, shareholder activism was dominated mainly by individual shareholders. They began to use the newly established proxy framework to submit relatively simple shareholder proposals, primarily aimed at disciplining poorly performing board members. At this stage, the main focus was on management control, transparency regarding compensation, business practices, corporate strategy, and dividend policy. Even in this early period, investors sought better information for their own investment decisions (Gillan & Starks, 2007). Toward the 1970s, the first social issues also began to appear in shareholder proposals, adding an additional dimension to the previously governance-dominated agenda (Goranova & Ryan, 2014).

A major shift occurred in the late 1970s and especially during the 1980s with the rise of institutional investors. Their share of equity ownership increased significantly, which strengthened both their voting power and the feasibility of coordinated campaigns. A key regulatory milestone in this context was the Employee Retirement Income Security Act of 1974, which imposed fiduciary and due-diligence obligations on pension funds. This encouraged the emergence of pension funds as more professional, long-term, and responsible investors. Combined with the existing proxy framework, this development

increased the practical relevance of shareholder proposals, as institutional investors were now better positioned to use them effectively (Gillan & Starks, 2007). At the same time, union pension funds also began to pursue broader socio-political agendas in addition to governance and financial-performance issues. Themes such as anti-apartheid campaigns and early environmental concerns gained relevance, marking the beginning of a more diversified activism agenda (Goranova & Ryan, 2014).

This phase of increasing institutionalization also coincided with a broader shift from exit toward voice. While earlier dissatisfaction had often been expressed through selling shares, institutional investors had stronger incentives and greater ability to engage more actively through proposals, voting, and direct pressure on management. For atomistic investors, large-scale activism had generally been too costly relative to its private benefits. For institutional investors with substantial voting power, by contrast, engagement increasingly became worthwhile, provided that the expected benefits exceeded the associated costs (Admati & Pfleiderer, 2009).

The 1980s were also shaped by the takeover era. During this period, many firms were viewed as inefficiently managed, and their market valuation often fell below their underlying asset value. Shareholder activism played an important role in this context because it was used both to support takeover bids favored by investors and to oppose defensive measures taken by management. Investors pressured boards either to support takeovers or to refrain from blocking them. In this phase, shareholder activism was strongly oriented toward short-term shareholder value maximization, reinforced by takeover premiums. Social or environmental goals played only a very limited role (Gillan & Starks, 2007). In this sense, the takeover era represents a particularly visible but strongly value- and transaction-driven form of shareholder activism (Shleifer & Vishny, 1997).

The 1990s then marked a phase of growing institutionalization and professionalization. Activism became less episodic and more embedded in recurring governance processes. Shareholder proposals became a regular instrument, and their probability of success increased as the ownership base became more institutionalized (Gillan & Starks, 2007). SEC reforms in 1992 further facilitated communication and coordination among investors, thereby increasing the effectiveness of collective activism. During this period, so-called relational activism also became more important. This refers to more regular and less confrontational dialogue between funds and company management. Core issues included board independence, executive compensation, and shareholder rights (Goranova & Ryan, 2014).

In the early 2000s, major corporate scandals such as Enron and WorldCom reinforced calls for stronger transparency and tighter governance controls. As a result, shareholder activism remained heavily governance-driven, but it also increasingly expanded toward strategic corporate issues. Investors sought greater influence over the direction of the firm, and CSR-related concerns gradually gained more prominence. At the same time, hedge funds became more visible activists, typically pursuing more aggressive and return-oriented agendas. Proxy advisors also became increasingly important in this period, as they provided institutional investors with voting recommendations and thereby shaped

shareholder behavior on a larger scale. Overall, shareholder activism became more professionalized, institutionalized, and strategically diverse (Gillan & Starks, 2007; Goranova & Ryan, 2014).

Another important turning point was the global financial crisis of 2008 and 2009. Weaknesses in corporate governance and risk management were widely identified as key contributing factors. In the aftermath of the crisis, shareholders were increasingly assigned a monitoring role with respect to governance quality, transparency, and risk control. This also contributed to a stronger shift away from purely short-term value-maximizing activism toward longer-term concerns, including CSR and later ESG-related issues (Gillan & Starks, 2007; Goranova & Ryan, 2014).

In the following period, climate risks became more widely understood as financially material. As a result, the environmental dimension of ESG moved more strongly into the center of shareholder activism. Investors increasingly began to treat climate-related issues not only as normative concerns, but as strategic financial risks affecting firm value, returns, and financing conditions. This development is also consistent with the fiduciary obligations of institutional investors, which increasingly require them to consider such long-term risks (Krueger et al., 2020). Empirical evidence by Hoepner et al. (2024) further suggests that successful ESG engagement can reduce downside risk, particularly in the environmental and governance dimensions, by promoting governance reforms and strategic adjustments. In this sense, the 2010s mark an important phase in which shareholder activism increasingly moved beyond pure shareholder-value logic toward a broader shareholder-welfare perspective (Hart & Zingales, 2017).

At the same time, ownership structures continued to shift as ever more capital flowed into passive, index-based investment products. Because index funds automatically hold large stakes in many firms, their voting power has become increasingly concentrated in the hands of a few dominant providers. This development has made index funds highly relevant to contemporary shareholder activism. However, these investors also face incentives to invest relatively little in costly monitoring and engagement, since the costs are concentrated on them while the benefits are more broadly shared. This creates a form of rational reticence. Index funds therefore rarely play the most proactive activist role, but their voting power still gives them considerable influence over the agenda and the outcomes of shareholder activism, including on ESG-related issues (Bebchuk et al., 2017).

Taken together, this historical development shows that shareholder activism has evolved from isolated and mainly individual initiatives into a professionalized and increasingly institutionally dominated governance mechanism. With the growing importance of institutional investors and, later, large index fund providers, not only the central actors but also the style and substance of activism changed—from individual proposals and takeover-related conflicts to relational engagement, stewardship, and increasingly ESG-related concerns. Against this background, the relevant question is no longer whether shareholder activism can in principle be used to exert influence, but rather through which specific forms this influence is exercised in practice. The following section therefore turns to the main forms of shareholder activism and their respective logic of influencing corporate decisions.

### 2.2.2 Forms of Shareholder Activism

Shareholder activism should not be understood as a single instrument. Rather, it takes different forms that vary in their degree of publicity, confrontational intensity, cost, and coordination requirements. They also differ in whether they operate through formal legal rights or informal channels and in whether they can be exercised effectively by individual shareholders or require broader collective support. In practice, these forms often do not occur in isolation but may complement one another within a broader activism process (Goranova & Ryan, 2014).

One central instrument is shareholder voting, often exercised through proxy voting. This refers to the use of voting rights at shareholder meetings, particularly regarding shareholder proposals and board elections (Goranova & Ryan, 2014). Voting functions as a direct governance mechanism because management decisions must ultimately be justified before shareholders and can be challenged through formal voting procedures. From an agency-theoretical perspective, this creates a disciplinary effect on boards and executives (Shleifer & Vishny, 1997).

An important advantage of proxy voting is that it is comparatively scalable. Voting rights exist regardless of whether investors engage more actively otherwise, which makes voting a relatively accessible instrument of influence. At the same time, its practical effectiveness depends heavily on collective support. Because voting outcomes follow majority logic, isolated small shareholders rarely achieve substantial effects on their own. Proxy voting therefore becomes particularly powerful when investors coordinate or when large institutional investors support the proposal (McCahery et al., 2016). In this context, proxy advisors play an important role by providing voting recommendations to institutional investors, thereby reducing information and coordination costs. Their influence can be considerable because many funds rely on these recommendations in practice. However, this standardization also carries the risk of promoting homogeneity across voting decisions and crowding out firm-specific solutions (Malenko & Shen, 2016; Rose, 2010). Overall, proxy voting is best understood as a scalable and visible mechanism of pressure that can be highly effective when supported by coordination and voting power.

A second major form is private engagement. This refers to non-public interactions between investors and corporate management, such as meetings, briefings, or negotiations, aimed at influencing corporate decisions without public confrontation (Goranova & Ryan, 2014). In practice, private engagement often constitutes the most important and most common form of shareholder activism. Because it initially appears less confrontational than formal proposals or public campaigns, management may be more willing to respond cooperatively. This makes private engagement particularly suitable for long-term investors seeking to influence strategic or governance-related issues through dialogue rather than escalation.

The topics addressed through private engagement are broad and include executive compensation, governance structures, strategic orientation, and corporate transactions such as mergers and

acquisitions. In this sense, private engagement often concerns precisely those issues that shape the firm's long-term direction. It may also interact with other forms of activism. For example, the possibility of filing or maintaining a shareholder proposal can serve as a bargaining device in private discussions. The withdrawal of proposals may then indicate that a negotiated solution has been reached behind the scenes (McCahery et al., 2016). Private engagement is therefore not a weaker substitute for formal activism, but often the central first stage in a broader influence process.

If private dialogue and formal voting do not lead to change, shareholder activism may escalate into public activism. Public activism encompasses forms of influence that explicitly seek to generate public pressure on the firm, such as open letters to the board, media campaigns, proxy fights, or legal action (Goranova & Ryan, 2014). Compared with voting or private engagement, this form is more confrontational and usually more expensive. For this reason, it is often used only when less confrontational instruments have not achieved the desired outcome.

Public activism is especially associated with hedge fund activism. Hedge funds often pursue concentrated, return-oriented campaigns focused on issues such as capital structure, payout policy, strategic restructuring, spin-offs, or changes in top management and board composition. Despite its higher costs, this form of activism can have substantial effects. Empirical evidence suggests that even the announcement of hedge fund activism may trigger positive stock price reactions and that implemented changes can improve profitability and efficiency in the medium term (Brav et al., 2008). Public activism therefore represents the most visible and escalatory form of shareholder influence.

These different forms of activism are often linked through an escalation process. In many cases, activism begins with private engagement. If this fails, investors may turn to formal voting as a more visible signal of dissatisfaction. When both dialogue and voting fail to produce the desired change, public activism may follow as a final and more confrontational stage. If even these voice strategies remain ineffective, exit in the form of divestment or the threat of exit may become the final consequence (Admati & Pfleiderer, 2009). In practice, however, voting, private engagement, public activism, and exit often interact rather than functioning as strictly separate alternatives. The threat of exit may strengthen voice strategies, just as formal voting can reinforce private negotiations (McCahery et al., 2016).

Empirical evidence suggests that shareholder activism can, under certain conditions, produce real governance and performance effects. Dimson et al. (2015), for example, show that a meaningful share of engagement campaigns leads to successful corporate changes and that successful activism can be associated with positive abnormal returns. At the same time, the effectiveness of activism is limited by coordination problems. Activism is costly, while the benefits of improved corporate decisions are often shared across all shareholders. This creates a free-rider problem, as investors may prefer to remain passive while benefiting from the efforts of others (Bebchuk et al., 2017). In addition, shareholder activism may also be affected by common-agency problems when multiple investors with heterogeneous preferences seek to influence management at the same time. In such cases, activism may

become less effective or may primarily reflect the interests of particularly influential investors rather than those of shareholders more broadly (Rose, 2010).

For this reason, isolated activism is often insufficient. In practice, successful shareholder influence frequently depends on coordination, complementarity, and the presence of actors who can aggregate voting power and engagement capacity. This is precisely where financial intermediaries become important. By pooling capital, information, and voting rights, they can help overcome some of the coordination problems that limit activism by dispersed investors. The following section therefore examines the role of financial intermediaries in shaping shareholder activism and corporate influence.

### 2.2.3 Shareholder Activism and Financial Intermediaries

In the context of shareholder activism, financial intermediaries are institutional investors that pool the shareholdings and voting rights of many individual investors and thereby become central actors in monitoring and influencing corporate governance (Wright et al., 2013). Their importance follows from the fact that direct contracting and direct monitoring by many dispersed shareholders is often inefficient. If investors were to monitor firms individually, they would duplicate information acquisition, incur separate coordination costs, and face strong incentives to free ride, since the benefits of activism are at least partly shared while the costs are borne privately. Delegated monitoring by intermediaries can therefore increase efficiency by centralizing information production, monitoring, and influence activities (Diamond, 1984; Boyd & Prescott, 1986). Beyond governance, intermediaries also perform broader financial functions by pooling capital, providing access to diversified risk allocations, and transforming liquidity (Holmström & Tirole, 1998). In the activism context, however, their key relevance lies in the fact that larger and more concentrated holdings make it easier to internalize at least part of the benefits of activism, thereby mitigating the classic free-rider problem that limits influence by dispersed shareholders (Gillan, 2009).

At the same time, intermediation does not simply eliminate agency problems but shifts them to another level. Fund managers act on behalf of end investors yet may pursue their own incentives and therefore underinvest in stewardship and engagement. Financial intermediaries can thus both enable and constrain effective shareholder activism. Their actual role depends on their objectives, time horizons, ownership structures, and business models (Bebchuk et al., 2017). For this reason, it is important to distinguish between different types of intermediaries and their characteristic incentives for activism.

The first and particularly important type are pension funds. These are typically long-term investors and therefore generally more inclined to support voice strategies that enhance long-term firm performance (Wright et al., 2013). Because beneficiaries are exposed to outcomes over long horizons, fiduciary duty is increasingly interpreted to include not only the maximization of financial returns in a narrow sense, but also the consideration of systematic and long-term financially material risks. This may include ESG-related risks such as climate change, governance failures, and corporate ethics. Pension funds can

therefore address ESG topics within shareholder activism as part of long-term risk management rather than purely as a moral add-on (Hawley et al., 2014).

A second important type is actively managed investment funds. Individual investors delegate capital to such funds, and fund managers are often evaluated under competitive pressure and can usually reallocate capital quickly. This tends to strengthen attention to short-term performance and may weaken incentives for costly and lengthy activism. At the same time, because actively managed funds often command substantial capital and voting power, they can still exert meaningful influence through shareholder voting and engagement, even if their commitment to stewardship differs across funds (Wright et al., 2013).

Index funds constitute a particularly important and distinctive category. Rather than selecting firms actively, they track an index and therefore hold diversified stakes in a broad range of companies over relatively long periods (Bebchuk et al., 2017). For this reason, they are often described as universal owners: because they hold a large cross-section of the market, they remain exposed to systematic risks such as climate change, regulatory instability, or broad governance failures across the economy. This creates a rationale for engagement and voting aimed at reducing such risks, since universal owners cannot simply diversify away from market-wide problems (Hawley et al., 2014). At the same time, index funds are often viewed as comparatively weak activists. Their products are low-fee and cost-sensitive, and they hold stakes in a very large number of firms, which makes intensive firm-specific engagement costly. In addition, because they track the same benchmark as competitors, they face limited performance incentives to incur large stewardship costs. This creates a free-rider problem at the fund level: each provider can benefit if others invest in costly activism while it still shares portfolio-wide gains. The result may be a form of rational reticence. Index funds therefore often rely more on scalable forms of stewardship, such as voting policies and broad governance principles, rather than highly intensive firm-specific activism, even though their voting power remains highly consequential (Bebchuk et al., 2017; Bebchuk & Hirst, 2019).

Hedge funds represent another distinct type of intermediary. They usually hold stakes in fewer firms, but often larger positions in each, and they frequently pursue shorter-term and predominantly monetary objectives (Wright et al., 2013). This concentration means that hedge funds can internalize a larger share of the benefits of activism. If they succeed in improving firm performance, they benefit directly through the appreciation of their holdings and often also through performance-based fee structures. This makes activism more economically viable for them and allows hedge funds to bear the initial costs of campaigns, while other investors may subsequently benefit from the resulting value gains without bearing these costs to the same extent. Hedge funds can therefore act as lead activists and partly mitigate free riding by taking on the initial organizational burden of activism (Bebchuk et al., 2017).

Private equity funds differ from these public-market intermediaries because they typically operate through concentrated ownership and direct control rather than through public-market voice campaigns. Their influence is therefore exercised less through shareholder activism in the narrow sense and more

through governance via direct owner control (Wright et al., 2013). In such settings, ESG issues become relevant especially when they can be linked to clearer economic arguments, rather than being pursued through dispersed ownership channels (Bolton et al., 2020).

A special position is occupied by proxy advisors. They are not financial intermediaries in the narrow sense, since they do not themselves hold capital on behalf of investors. However, they are central actors in shareholder activism because they provide institutional investors with information and voting recommendations across a large number of resolutions. Their importance lies in reducing information and coordination costs and in indirectly shaping voting outcomes through standardized recommendation frameworks (Malenko & Shen, 2016). At the same time, this outsourcing of voting judgments may contribute to one-size-fits-all outcomes and translate heterogeneous shareholder interests into more homogeneous voting behavior, potentially at the expense of firm-specific solutions (Rose, 2010).

From a broader perspective, institutional investors in shareholder activism face a fundamental trade-off between liquidity and control. Liquidity refers to the ability to exit by selling shares, whereas control refers to the use of voice and monitoring. The more attractive and less costly exit is, the weaker the incentive to engage in costly activism. Conversely, when exit is less feasible or less attractive, voice becomes relatively more relevant. Coffee (1991) highlights several additional reasons why institutional investors may nevertheless remain passive despite substantial voting power. These include business relationships with portfolio firms, political exposure, concerns about losing privileged access to company information, and performance evaluation systems that emphasize short-term results even though activism typically requires longer horizons. These factors help explain why institutional investors may display cautious or selective stewardship rather than continuous active engagement.

Institutional investors also differ in the substance of their preferences. They are not a homogeneous group, and this is particularly relevant in the ESG context. Bolton et al. (2020) distinguish investors along an ideological spectrum, suggesting that some investors place considerably more emphasis on ESG issues than others. More ESG-oriented investors may support sustainability-related proposals even at the expense of short-term profitability, whereas more return-focused investors tend to support ESG initiatives only when they can be justified more directly in economic terms. This heterogeneity implies that coalition-building becomes particularly important for ESG-related activism, since sustainability demands may divide investors more strongly than purely financial objectives. At the same time, Hawley et al. (2014) emphasize that fiduciary duty is increasingly interpreted as requiring the consideration of long-term and systematic risks, including ESG-related ones. Especially for universal owners, such risks can become portfolio-wide concerns, making ESG integration part of stability-oriented risk management rather than merely a discretionary or moral exercise.

Taken together, financial intermediaries are central to shareholder activism because they can pool capital, information, and voting rights and thereby partly overcome the coordination and free-rider problems that constrain dispersed shareholders. At the same time, they are themselves shaped by internal incentives, ownership structures, cost considerations, and heterogeneous objectives. Their role

in ESG-related activism is therefore neither uniformly enabling nor uniformly constraining but depends on the institutional setting in which delegation and stewardship occur. This makes financial intermediaries a particularly important link between individual investor preferences and effective corporate influence. The following literature review therefore turns to model-theoretical contributions that examine precisely these mechanisms of ESG management, shareholder influence, coordination, and delegation in a more formal way.

## 2.3 Literature Review: ESG Management and Shareholder Influence

This literature review examines the theoretical environment in preparation for the model in Chapter 3. It is deliberately selective and mechanism-based rather than exhaustive. The review focuses on five selected model-theoretical contributions at the interface of ESG management and shareholder influence. Its purpose is not to provide a complete overview of the broader literature, but to identify the core mechanisms that gradually lead to the main model based on Friedman and Heinle (2020).

An important starting point is the equilibrium model developed by Pástor et al. (2021), which shows how ESG preferences can generate both financial effects, such as changes in asset prices and expected returns, and real effects, such as shifts in firms' decisions toward greater sustainability. The model considers both dimensions of sustainable investing jointly. Sustainability is captured by an ESG characteristic that plays a central role in the framework. Firms are heterogeneous in this dimension. Companies that generate positive externalities are referred to as green, whereas companies that generate negative externalities are referred to as brown. Investors are also heterogeneous. In addition to financial motives, they differ in their ESG preferences and in the utility, they derive from holding green assets or the disutility they derive from holding brown assets. In equilibrium, these heterogeneous ESG preferences are reflected in prices. Stronger demand for green assets raises their prices and lowers their expected returns, whereas brown assets must offer higher expected returns to remain attractive. Consequently, the cost of capital declines for greener firms and rises for browner firms. Real investment therefore shifts toward greener firms and away from brown firms, where financing becomes more expensive.

In addition to this investment channel, the model also identifies a real effect through firms' incentives to become more sustainable. Higher sustainability increases market valuations through lower required returns, so value-maximizing firms have incentives to improve their ESG characteristic when such adjustment is feasible. ESG preferences thus become an additional pricing factor alongside the market. Moreover, an ESG investment industry, such as ESG investment funds, exists and grows particularly when ESG preferences differ strongly across investors. The model therefore provides an important equilibrium benchmark in which ESG preferences affect prices, expected returns, and firms' costs of capital, thereby shifting investment toward greener firms. At the same time, it remains open how costly shareholder influence is coordinated when the benefits of sustainability improvements are shared among many investors and whether delegation to intermediaries can mitigate this problem.

This motivates a closer look at the model developed by Heinkel et al. (2001), which examines whether and when a sustainability-motivated exit or divestment strategy can change corporate behavior. To this end, the authors develop an equilibrium model showing that pressure for greater sustainability can arise through the financing channel when investors withdraw capital from environmentally harmful firms. There are two types of investors: neutral investors without ethical screens and sustainable investors who do not hold shares in unacceptable firms. Companies are categorized as acceptable, unacceptable, or reformed. A previously unacceptable firm can reform at a fixed cost to regain access to sustainable capital. The decisive question is whether such reform is worthwhile from the perspective of maximizing firm value.

If green investors boycott an unacceptable company, the capital market risk of that company must be borne by fewer investors. This worsens risk sharing, lowers the stock price, and raises the cost of capital. Reform becomes worthwhile if the resulting price gain exceeds the fixed reform cost. The number of reformed firms therefore increases with the share of green investors and decreases with higher reform costs. Importantly, the model also implies a threshold effect. Only once a sufficiently large group of sustainable investors jointly boycotts does reform become attractive. In the basic model, around 25 percent of investors must be sustainable before the first previously unacceptable company reforms. The authors also argue that the threshold may be lower in practice, but the central mechanism remains unchanged: below a certain minimum share of green investors, a marginal increase in sustainable investing may worsen risk sharing without generating any reform at all.

Heinkel et al. therefore provide a model-based theoretical justification for why exit and divestment can, in principle, work as a channel through which investors' ESG preferences affect firms. At the same time, the model makes clear that effectiveness depends strongly on coordination and threshold effects. It therefore highlights an important limitation on the exit channel. The framework remains largely silent on how corporate change can be achieved when exclusion alone is insufficient, when influence is costly, and when the benefits from improved ESG performance are broadly shared among investors.

A more targeted perspective is offered by Oehmke and Opp (2025), who distinguish between socially responsible investing as portfolio selection and impact investing aimed at changing corporate decisions. Their model asks whether socially responsible capital can generate real effects rather than merely reallocate ownership. Firms can choose between dirty and clean production. Dirty production is privately more attractive, whereas clean production causes fewer social costs but is often more dependent on external financing. Because future cash flows cannot be pledged completely and credibly to investors, financing constraints arise, and these are particularly severe for financing-intensive clean technologies. The model therefore contains double inefficiency. First, environmental and social externalities are not fully reflected in private cash flows, making dirty production privately attractive. Second, clean production is underfunded because of limited pledgeability and the resulting financing constraint.

Against this backdrop, socially responsible funds can, in principle, help close the financing gap for clean technologies. Whether they do so depend on the mandate of the fund. Under a narrow mandate, the fund mainly prefers firms that are already clean and avoids firms that are currently dirty. This shifts ownership toward already sustainable firms but does not change firms' real decisions. There is therefore no real impact on the model. Under an impact mandate, by contrast, the fund evaluates social costs relative to the counterfactual without its investment. Real impact then arises only if the fund's capital changes actual decisions, for example by enabling a switch from dirty to clean production when financing constraints would otherwise bind. In this sense, socially responsible capital can act like a targeted subsidy. However, such an impact strategy is associated with a return sacrifice. The active acceptance of lower returns is precisely what allows social costs to be internalized and real decisions to be changed. In addition, scarce socially responsible capital should be allocated where it generates the greatest reduction in social costs relative to the counterfactual. For this purpose, the model develops a social profitability index that identifies where an additional unit of capital produces the largest sustainable impact.

This distinction is highly relevant for the present study because it sharpens the difference between merely holding sustainable assets and improving sustainability outcomes at the firm level. At the same time, the model also reveals another coordination problem. If investors delegate to an impact fund, the resulting transformation is a public good. Individual investors may then prefer not to delegate, save the associated costs, and still benefit from the impact generated by others. The model therefore brings the delegation problem itself into focus and already points toward the importance of intermediation and free riding.

A related but distinct mechanism is analyzed by Jin and Noe (2024), who show how ESG influence can arise through shareholder voting. Their model highlights the strategic dimension of ESG proposals and the central role of large block holders. An ESG activist with a small shareholding develops and submits a sustainability-oriented proposal. Implementing the proposal would increase sustainability but reduce firm value. Universal owners, that is, large institutional investors, are decisive for the voting outcome, whereas the remaining investors are atomistic. These universal owners may be either green or brown. Green owners support ESG proposals for sustainability reasons, whereas brown owners are purely return-oriented. At the same time, brown investors may incur reputational costs if they publicly vote against an ESG proposal. This creates an incentive for strategic voting rather than purely preference-based voting.

From a purely financial perspective, brown investors would reject such a proposal. However, if they believe that many other investors will support the proposal and that it will pass anyway, they may also vote in favor of avoiding reputational costs. If, by contrast, they expect their vote to be decisive, they are more likely to oppose it. Voting outcomes therefore depend not only on ESG preferences, but also on expectations about others' behavior and on reputational incentives. Even small reputational costs can be sufficient for a proposal to pass if there is a positive probability that some universal owners are

green. At the same time, the model shows that support for ESG proposals need not increase monotonically with green sentiment, because brown investors may coordinate more strongly in response. Support for ESG proposals can therefore be volatile and cannot be understood as the simple aggregation of individual preferences.

In addition, activists must first incur costs to acquire the minimum shareholding and prepare the proposal and will only do so if the expected probability of success and the expected ESG benefit justify these costs. If, however, the ESG initiative threatens to reduce firm value too strongly, the activist may decide not to submit the proposal after all. Jin and Noe therefore show that ESG influence through voting does not arise automatically from existing investor preferences. It also depends on coordination, reputation, and strategic interaction, especially on the part of large block holders. At the same time, the analysis focuses specifically on the voting mechanism and leaves open how costly influence is sustained and coordinated beyond voting once the benefits are broadly shared.

Gryglewicz et al. (2025) go one step further and analyze whether shareholder activism in the form of engagement can accelerate a green transition when coordination frictions arise at multiple levels. Their model is particularly relevant because it shows why activism may be weak, ambivalent, or even counterproductive despite positive ESG preferences. The starting point is a brown firm that can initiate a costly and uncertain sustainable transformation. The success of this process depends both on management effort and on costly private effort by an activist investor, for example through monitoring, governance interventions, or strategic support. Activists differ from passive investors because they derive an additional non-monetary benefit if the transformation succeeds.

Once both actors seek to promote the transition, a double moral hazard problem emerges. Neither management effort nor activist effort can be fully observed or contractually fixed, so both sides may rely on the effort of the other. This creates an internal free-rider problem. In addition, before activism even begins, an external free-rider problem arises under dispersed ownership. If sustainable transformation increases firm value and this is capitalized into the share price, passive investors benefit as well, even though they did not bear the costs of engagement. The activist therefore captures only part of the return and may lose the incentive to intervene in the first place. One implication is that activists may prefer firms where transformation is relatively easy rather than firms where their intervention would have the greatest marginal effect. The model refers to this as green tilt.

Based on these frictions, the analysis yields three possible cases. First, there may be no activism at all because the external free-rider problem dominates. Second, there may be bad activism, where activist effort crowds out management effort so strongly that total effort falls and the transition slows down. Third, there may be good activism, where the activist's additional effort more than offsets the reduction in management effort and therefore accelerates the transition. The model thus shows that ESG activism is not automatically beneficial. Its effect depends on the strength of ESG preferences as well as on both external and internal coordination problems. In addition, the authors show that ($CO_2$) taxation or stronger ESG preferences among passive investors may also promote sustainable transformation

without activism. At the same time, however, such developments can crowd out activism itself by intensifying the external free-rider problem and reducing the private attractiveness of engagement. This is highly relevant for the present study because it demonstrates that even direct engagement remains conditional rather than automatically effective. What remains unresolved, however, is how the ESG preferences of many dispersed investors can be translated into stable and coordinated influence.

Taken together, these five model-based contributions identify different channels through which ESG can matter. Pástor et al. (2021) show how ESG preferences affect prices, returns, and capital allocation in equilibrium. Heinkel et al. (2001) demonstrate that divestment can induce reform through financing costs, but only under strong coordination conditions. Oehmke and Opp (2025) clarify that real impact depends on whether socially responsible capital is allocated under an actual impact mandate rather than a narrow screening logic. Jin and Noe (2024) show that ESG voting outcomes depend on strategic interaction, reputation, and the behavior of large block holders. Gryglewicz et al. (2025), finally demonstrate that even direct activism through engagement remains highly sensitive to both external and internal free-rider problems.

The common thread running through these studies is therefore not simply the existence of ESG preferences, but the question under which conditions these preferences are translated into effective corporate influence. Across the different models, coordination problems, costly influence, incentive conflicts, and free riding repeatedly emerge as central obstacles. This, in turn, makes delegation and financial intermediation particularly important. The model in the following chapter builds on precisely this point by integrating costly shareholder influence with the delegation of capital and voting rights to financial intermediaries. It therefore provides a framework for analyzing when ESG concerns remain confined to capital-market allocation and when they become effective at the corporate level.

# 3. Model Analysis

In the next chapter, based on the theoretical foundations and model-theoretical work from the existing literature, a formal analysis will be carried out to examine the research question in a rigorous and comprehensible manner. For this purpose, a theoretical model based on the model-theoretical work of Friedman and Heinle (2020) will be used. This allows causal relationships and conditions to be clearly separated and shows under which conditions ESG concerns are translated into influence over corporate decisions and thus affect the ESG performance of the company. Chapter 3 thus forms the analytical core of the work. It follows a step-by-step structure: after first discussing the model structure and assumptions, the results of the benchmark model and the extension to portfolio effects are presented. In addition, the results are illustrated with numerical examples and practical implications are derived.

## 3.1 Model Assumptions

First, it is necessary to examine the model structure and model assumptions in detail to lay the foundations for the subsequent analysis of results.

The model features a single-company economy. This means that there is exactly one company with one manager who decides regarding a corporate action a. The shares of this one company are traded on a competitive capital market, where the price p is determined by the condition of complete market clearance. Supply therefore equals demand, with the supply of shares being fixed and equal to one. On the investor side, there is a continuum of atomistic investors of mass one. Atomistic means that each individual investor is so small that they have no individual market power. They cannot change the share price through individual trading and must therefore accept it as it is formed by the market. On the company side, the cash flow x per share depends linearly on action a: $x = \beta a + \varepsilon$.

$\beta > 0$ explains the influence of the action on the expected cash flow. $\varepsilon$ is a random component of the cash flow that is normally distributed with an expected value of zero and the variance $\sigma^2$ . The cash flow x is thus expressed stochastically with a normally distributed structure. In the formula, the $\beta$ factor is the central link between a real decision regarding a corporate action and the resulting financial performance. This is relevant to be able to clearly distinguish later between what is monetarily driven and what arises from ESG preferences. There is a three-period timeline within the model. Trading takes place in the first period, $t_1$: Investor $j \in [0,1]$ selects his portfolio $q_j$ and buys shares at price p accordingly. In $t_2$, the investor has the opportunity to influence the manager via effort $m_j$, who in turn selects company action an in $t_2$, too. In period $t_3$, the company's cash flow x is then realized, and all participants can consume. The timeline shows that shareholder influence occurs after the purchase. The fact that the investor purchased shares in $t_1$ is considered a given for the influence decision in $t_2$. The latter is therefore a separate cost-benefit analysis.

The manager acts in a utility-maximizing manner when deciding on a. The utility function is:

$$u_m = -(a - m - \mu)^2. \quad (1)$$

This is a quadratic loss function, meaning that the manager suffers if his chosen action a deviate from the desired level of action. Small deviations result in only minor losses for the manager, but due to the quadratic function, larger deviations between the chosen action and the desired action level $m + \mu$ are disproportionately expensive. The direction of the deviation is irrelevant, only its magnitude matters. $\mu$ is the level of action that the manager would intrinsically choose without investor influence. $m = \int m_j d_j$ is the aggregate influence exerted by all investors j. Investor influence is having an additive effect on $\mu$ and is intended to push the manager toward investor preferences. The best response to maximize utility leads to corporate action corresponding to a linear response function composed of the aggregate influence of all investors j and the intrinsic manager preference:

$$a = m + \mu. \quad (2)$$

Each additional unit of aggregate influence m is therefore directly translated into action a. The manager responds mechanically and transparently to the overall pressure from the investors' influence when making his decision.

The investor himself is risk-averse and evaluates the investment through two channels. First, he receives a monetary payoff from holding shares and consuming the cash flow in period $t_3$. Second, he has a non-monetary preference over the manager's action a, which captures ESG-related concerns in the model. This non-monetary benefit includes the investor's ESG preference. In the model, however, he can only choose his influence effort $m_j$ in $t_2$ himself, in addition to the stock portfolio $q_j$ in $t_1$. Accordingly, the investor has a certainty equivalent $CE_j$, which is the secure amount of money that would put it in the same position as the risky ESG-influenced payout in the model, and has the following form:

$$CE_j = q_j(\beta a - p) - \frac{\gamma}{2}(a - A_j)^2 - \frac{c}{2}m_j^2 - \frac{1}{2}\tau q_j^2 \sigma^2. \quad (3)$$

The first part of the term is the expected net monetary payoff from the investment in $t_3$. The expected cash flow $\beta a$ minus the share price p is scaled by the size of the portfolio $q_j$. It is evident that a higher action a and also a higher factor $\beta$ ceteris paribus increase the expected cash flow. The second part captures the investor's non-monetary preference regarding sustainability and ESG as a quadratic loss from deviations between the actual action a and the investor's ideal action $A_j$. The greater the deviation from action a, the higher the disutility. The deviation grows quadratically in the formula, so that the disutility becomes significantly greater in the event of a large deviation. The investor therefore prefers a company action a that is close to or equal to his $A_j$. The parameter $\gamma$ indicates how important the investor's non-monetary preference is to him and thus the deviation between the real and ideal actions. In principle, the investor benefits when action a shifts toward $A_j$ and can use his influence $m_j$ to achieve this. However, this results in a trade-off for the investor, as on the one hand they can benefit from their influence, but on the other hand this influence is costly for them privately. These costs of influence $m_j$ are represented by the third part of the formula. The parameter c indicates how high the costs of influence $m_j$ are. The effort required to exert influence is recorded quadratically, and the marginal costs are therefore always increasing. The more influence the investor exerts, the higher the costs. The last part of the formula is the risk term. Since the investor is risk-averse and a Constant Absolute Risk Aversion (CARA) utility function is used as a basis, the parameter $\tau$ for the investor's absolute risk aversion is included at this point. The variance $\sigma^2$ of the random cash flow shock $\varepsilon$ indicates the volatility of future payouts. In addition, the risk from an investment is scaled by the square of the corresponding position size $q_j$. If, for example, the number of shares held doubles, then ceteris paribus, the risk costs quadruple. Generally speaking, investors' ESG concerns are operationalized through a modelled corporate action a, which can be interpreted as an ESG-relevant decision or policy choice. The model analytically distinguishes between a monetary channel on the one hand and a non-monetary,

preference-driven channel of action on the other. Building on this utility structure of the manager and investors, the model can be solved step by step and in different situations in the following chapters.

## 3.2 Model Results

Building on the model assumptions from Section 3.1, the model is now solved sequentially, and the central equilibrium conditions are derived, which will later allow the interpretation of the ESG mechanisms. To this end, the results for the basic model involving only individual investors and no financial intermediaries are first derived as a baseline. The model is then expanded to include the delegation of capital and voting rights by individual investors to intermediaries. The next building block is the introduction of endogenous decisions on delegation by investors. Finally, an extension is made regarding multiple firms and possible portfolio effects.

### 3.2.1 Results in the Absence of an Intermediary

We will now consider the baseline setting with only small individual investors and explicitly without intermediaries. This means that all investors trade directly on the market. They form an atomistic continuum, meaning that each individual investor is a price taker and has no measurable individual effect on either the share price or the manager's action. The relevant structure remains trading in period $t_1$, the possible exercise of investor influence $m_j$ and the manager's decision on action a in $t_2$, and the consumption of cash flow x in $t_3$. The results follow by backward induction.

Based on the model setup, aggregate influence is defined as $m = \int_0^1 m_j d_j$. The manager in turn incorporates this influence m into his decision on corporate action a, so that $a = m + \mu$ applies to this corporate action. For an individual investor, the marginal effect of his investor influence $m_j$ on corporate action a is negligible. His effort to shift action a toward his ideal action $A_j$ leads to the following marginal change: $\frac{\partial a}{\partial m_j} = \frac{\partial a}{\partial m} \cdot \frac{\partial m}{\partial m_j} = d_j \approx 0$. The marginal costs of the influence $m_j$ result from the utility maximization of the safety equivalent: $\frac{\partial CE_j}{\partial m_j} = \left(\frac{\partial CE_j}{\partial a}\right) \cdot \left(\frac{\partial a}{\partial m_j}\right) - cm_j = -cm_j = 0$. The result shows that the marginal costs $cm_j$ are strictly positive as soon as $m_j > 0$ applies. Individual influence therefore has no measurable effect on the manager's action, while any non-zero effort remains privately costly. Maximizing utility means that individual influence would not be rational, as the investor bears the costs privately, but its increase in utility from a marginal change in a is practically zero. In the optimum case, the following applies: $m_j^* = 0 \ \forall j \Rightarrow m^* = 0$. The optimal individual and thus also the aggregate influence of investors is zero. This in turn implies that $a = \mu$ applies to the optimal corporate decision. Investor preferences, such as ESG concerns, are therefore not translated into the modelled corporate action. The manager implements his intrinsic level of action. This baseline result can be interpreted as a free-rider problem at the level of

atomistic shareholders: shareholder influence affects the common managerial action a and is therefore non-excludable from the perspective of shareholders. Any resulting change in cash flows or in the corporate action is reflected at the firm level and cannot be reserved for the investor who bears the influence cost. However, the individual investor is infinitesimally small, so that his marginal contribution to the aggregate influence m and thus to the action a is negligible. Since the costs of influence are borne privately, however, the individually optimal decision is not to exert any influence. For the investor's certainty equivalent $CE_j$, this means that the term for the cost of influence is zero. The non-monetary term of the certainty equivalent plays no role in the decision as to which optimal position size $q_j^*$ the investor should buy, as it is constant in $q_j$. The demand of each individual investor is thus determined exclusively by the expected cash flow per share scaled by the risk penalty: $q_j^* = \frac{\beta\mu - p}{\tau\sigma^2}$. Market clearing implies that aggregate demand equals the fixed supply of one share. As all atomistic investors choose the same position size $q_j^*$, it follows that $q_j^* = 1$ in equilibrium. The following benchmark then applies to the price per share in this basic model: $p^b = \beta\mu - \tau\sigma^2$. Without a financial intermediary, the investor's non-monetary preferences have no impact on either the company's action a or the share price p in the model. The value of the company reflects only the monetary channel and the risk costs. This benchmark highlights that ESG concerns do not translate into corporate action or share prices without a coordinating mechanism, thereby motivating the introduction of an intermediary in the next section.

### 3.2.2 Results with an Intermediary

This section expands the basic model to include financial intermediaries, such as asset managers. These bundle the capital of many investors and thus hold a significant position in the market. Intermediaries do not act atomistical, as individual investors do in the basic model. This coordination intuitively creates a scalable incentive to exert influence, as part of the benefits can be internalized via the position held. In the model, there is now a portion of investors $\lambda \in [0, 1]$ who delegate portfolio decisions to the intermediary. While investors $j \in [0, \lambda]$ delegate, the rest of the investors $j \in [\lambda, 1]$ continue to invest directly, as in the basic model. If no investor delegates, i.e., $\lambda = 0$, then the result corresponds to the scenario of the basic model from section 3.2.1. The initial assumption is that the delegation share $\lambda$ is exogenously given. An endogenous consideration follows in section 3.2.3. On the one hand, the intermediary internalizes the monetary and non-monetary preferences of the delegating investors because these enter its objective function through their certainty equivalents. On the other hand, the intermediary also has its own preference over the corporate action a, which is interpreted here as the ESG-relevant decision variable. They are not neutral actors. As in the basic model, the equilibrium is solved in the following by backward induction.

Once the investor has decided on delegation and the intermediary has made a portfolio decision, the intermediary selects its influence intensity mi. According to the time structure in the model, the price p

is already given when the intermediary selects its influence $m_i$. The influence therefore acts exclusively via the company action a itself and thus via the cash flow x. The intermediary acts in a way that maximizes benefits with the following objective function:

$$u_i = \lambda \cdot CE_j - \left(\frac{\gamma}{2}\right) \cdot (a - A_i)^2 - \left(\frac{c}{2}\right) \cdot m_i^2, \tag{4}$$

where $CE_j = q_i \cdot (\beta \cdot a - p) - \left(\frac{\gamma}{2}\right) \cdot (a - A_j)^2 - \left(\frac{\tau}{2}\right) \cdot q_i^2 \cdot \sigma^2$ is the corresponding certainty equivalent of a delegating investor who, however, according to the results in section 3.2.1, chooses no individual influence, i.e., $m_j = 0$. This is scaled by the mass of delegating investors λ. A larger λ therefore gives greater weight to the delegating investors' certainty equivalents in the intermediary's objective function. The second part of the utility function corresponds to the intermediary's non-monetary preference for company action a. $A_i$ is the level of action preferred by the intermediary. The benefit is reduced quadratically according to the deviation between a and $A_i$. As in the formula for the investors' certainty equivalent, γ measures how important the non-monetary component is. The third part of the equation again represents the costs of exerting influence. This time, it is measured by the intermediary's intensity of influence $m_i$. At this stage, the intermediary chooses only its influence. Due to the time structure in the model, the price p and the portfolio size $q_i$ in period $t_1$ have already been chosen and are to be assumed as given in the influence period. If the intermediary chooses a higher influence $m_i$, this results in additional benefits because a change in the action level influences the monetary part via the cash flow in the certainty equivalent $CE_j$ on the one hand and reduces the non-monetary distance to the desired level $A_i$ on the other. However, this is offset by the simultaneous increase in influence costs. It is therefore important to give the intermediary the optimal influence $m_i$ to maximize benefits. The intermediary selects this influence depending on the selected position size $q_i$ as follows:

$$m_i^*(q_i) = \frac{\gamma(A_i - \mu)}{c + (1+\lambda)\gamma} + \frac{\lambda\gamma(A_j - \mu)}{c + (1+\lambda)\gamma} + \frac{\lambda\beta q_i}{c + (1+\lambda)\gamma}. \tag{5}$$

The formula for optimal influence by the intermediary can be divided into three channels.

The first component represents the intermediary's own preference for corporate action a and remains independent of the position size $q_i$. The more strongly the intermediary desires a level of action $A_i$ that deviates from μ, the stronger the incentive to exert influence on the manager. This is not a quadratic expression, which means that the direction of the deviation plays a role in the influence: if $A_i > \mu$, then the intermediary chooses positive influence that increases the level of action a. If a is interpreted as an ESG-improving action, this corresponds to stronger ESG-related corporate behavior. However, if $A_i < \mu$, then the influence can also be negative and reduce the level of action. This would mean that the intermediary wants the manager to act less aggressively and take weaker corporate action.

The second component is the internalized non-monetary investor preference $A_j$ for action a or the manager's base level μ. It is also independent of the position size $q_i$. Here, too, the incentive for greater

intermediary influence increases the more $A_j$ differs from μ. As with the first component, the influence can again be positive or negative. The effect of this part of the term is also scaled based on the number of delegating investors λ. The greater the proportion of delegating investors, the more weight the investor preference is given and the more influence the intermediary exerts in this regard. This component thus shows how the non-monetary preferences, for example ESG preferences, of the atomistic individual investors are transferred to the manager and the company's actions through delegation.

The last part of the formula is the monetary channel and thus the performance component. It internalizes the cash flow generated in period $t_3$. Here, too, the number of delegating investors λ plays a role, because when λ increases, the intermediary also acts on behalf of several investors and thus has a greater incentive to improve the cash flow through greater influence $m_i$. The same mechanism also applies to the size of the position $q_i$. In addition, the monetary part also depends on the parameter β and thus on the effectiveness of the action a on the cash flow. The larger this factor is, the more attractive the influence is from a financial perspective and the more it increases.

All three components have a common denominator $c + (1 + \lambda)\gamma$. In general, the larger this denominator, the lower the optimal intensity of influence $m_i$. The cost parameter of influence c acts as a strict dampener, as it appears exclusively in the denominator and not in any of the numerators. This can be explained intuitively, because if exerting influence becomes fundamentally more expensive, then the utility-maximizing investor initially has an incentive to exert less influence. In contrast, $(1 + \lambda)\gamma$ captures how strongly non-monetary preferences enter the intermediary's optimization problem. A higher γ increases the weight placed on matching the desired action levels, so deviations of a from $A_i$ and, through the delegating investors' certainty equivalent, from $A_j$ become more costly in utility terms. Similarly, a larger delegation share λ amplifies the relevance of the investors' preference component in the objective function. As a result, the term $(1 + \lambda)\gamma$ appears in the denominator and moderates how strongly the components in the numerator translate into influence. However, γ should not be interpreted as a purely dampening parameter, because it also increases the weight of the preference terms in the numerator. Its overall effect on the optimal influence intensity mi* therefore depends on the underlying preference constellation. Regarding the importance of non-monetary preferences γ, two borderline cases need to be considered. If $\gamma \to 0$, then these non-monetary preferences are no longer relevant and the optimal level of influence $m_i^*$ is based solely on monetary incentives. The intermediary therefore acts purely on a profit-driven basis. However, if $\gamma \to \infty$, then the non-monetary preferences completely dominate the monetary channel, whose contribution becomes negligible relative to the preference terms. The influence $m_i$ causes the manager to choose an action that corresponds to the weighted average of the non-monetary preferences of the intermediary and delegating investors: $a \to \frac{A_i + \lambda A_j}{1+\lambda}$. Now that the optimal influence $m_i^*$ has been defined as a function of the position size $q_i$, the next logical step in the backward induction process is to determine the intermediary's optimal portfolio decision $q_i^*$ in period

$t_1$. The intermediary chooses his demand given the market price p but anticipates that his later influence $m_i$ will be chosen optimally. If the optimal influence from period $t_2$ is therefore incorporated into the intermediary's utility objective function, in period $t_1$ this will only depend on the portfolio size $q_i$, the price p, and the other parameters. In period $t_1$, the intermediary already considers that the size of its position changes the incentive to exert influence and thus also influences the expected cash flow from period $t_3$. This creates a close link between the position size qi and the influence mi. Solving the first-order condition of the intermediary's utility function for $q_i$ yields the optimal demand $q_i^*$ as a function of the price p:

$$q_i^*(p) = \frac{\beta \frac{c\mu + \gamma A_i + \lambda\gamma A_j}{c + (1+\lambda)\gamma} - p}{\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1+\lambda)\gamma}}. \quad (6)$$

The formula has a classic portfolio structure with the net incentives per share in the numerator and the effective risk and discipline components in the denominator. The numerator reflects the expected cash-flow value of the action induced by the intermediary, net of the price p. The factor β translates the expected action level into expected cash flow. In contrast to the benchmark case from Section 3.2.1, this expected action level is affected not only by the manager's baseline μ, but also by the intermediary's desired action $A_i$ and the delegating investors' desired action $A_j$. Higher desired action levels increase demand insofar as they raise the expected action and thus expected cash flow. The parameter λ scales how strongly investor preference counts. The price p reduces the optimal demand. These incentives are dampened in the denominator of the numerator by the expression $c + (1+\lambda)\gamma$: higher influence costs c or more heavily weighted preferences γ reduce the extent to which these drivers translate into the intermediary's actual demand $q_i^*$. The denominator includes the classic risk component $\tau\sigma^2$, which has a reducing effect. The additional term $\frac{\beta^2\lambda}{c+(1+\lambda)\gamma}$ reflects the feedback that a larger position held later in period $t_2$ increases the optimal influence $m_i^*$, which in turn increases the expected cash flow via action a. This feedback reduces the dampening effect of risk. The larger β and λ are and the smaller $c + (1+\lambda)\gamma$ is, the stronger the feedback and the higher the optimal demand $q_i^*$. The proportion of delegating investors λ has both an increasing and a dampening effect on $q_i^*$ via several channels, so that the overall effect is not clear-cut and depends on the relative magnitudes of the other parameters. However, for an internal optimum, the condition $\tau\sigma^2 - \frac{\beta^2\lambda}{c+(1+\lambda)\gamma} > 0$ must apply. If this condition is not met, the intermediary's objective function in the position size $q_i$ results in an infinitely growing demand for additional shares, $q_i \to \infty$. In this case, there is no finite interior solution. In the further model analysis, $\tau\sigma^2 > \frac{\beta^2\lambda}{c+(1+\lambda)\gamma}$ is therefore assumed.

Now that the optimal demand of the intermediary has been determined, it remains to consider that of the direct investors. The conclusion from section 3.2.1 still applies to them, namely that they should not

exert any individual influence. However, the direct investor benefits from the expected cash flow, which is the same for all investors in period $t_3$, because the intermediary exerts influence $m_i^*$ in period $t_2$ and thus influences the corporate action a. The direct investor therefore anticipates the demand of the intermediary $q_i^*$ and its influence $m_i^*$ in its demand. Direct investors also act in a way that maximizes utility when making portfolio decisions, resulting in the following optimal demand as the first-order condition of their certainty equivalent after $q_j$:

$$q_j^* = \frac{E[x] - p}{\tau\sigma^2}, \tag{7}$$

where $E[x] = \beta(\mu + m_i^*)$. The expected cash flow is not exogenous here but depends indirectly on the influence of the intermediary via action a and the optimal influence $m_i^*$ contained therein. If this influence increases, then the action level a, the expected value of the cash flow E[x], and consequently also the portfolio demand of the direct investor $q_j^*$ increase. The demand incentive from the expected cash flow is reduced by the share price p. In addition, the risk component $\tau\sigma^2$ has a dampening effect. The optimal demand function of the direct investor $q_j^*$ thus has a classic CARA structure. Non-monetary preferences only have an indirect effect on $q_j^*$ by changing the equilibrium action a via the intermediary. The direct investor thus benefits from the intermediary's involvement at no cost.

If we now substitute the optimal influence of the intermediary $m_i^*$ and simplify the term, we obtain the following equation for the optimal demand of the direct investor:

$$q_j^* = \frac{\beta\frac{c\mu + \gamma A_i + \lambda\gamma A_j}{c + (1+\lambda)\gamma} - p}{\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1+\lambda)\gamma}} \Rightarrow q_j^* = q_i^*. \tag{8}$$

In equilibrium, the core result is that direct investors and delegating investors have the same demand. Although a direct investor does not bear the costs of influence and therefore, they do not directly affect his utility function, a higher cost level c influences the optimal intermediary influence $m_i^*$. Since this changes the expected cash flow E[x] via the corporate action a, which in turn is anticipated by all market participants, the influence costs also have an indirect effect on the optimal demand of direct investors. Even a direct investor internalizes the costs to the extent that their demand is adjusted accordingly. This is why, in equilibrium, all investors demand the same optimal portfolio size, even though the costs are borne asymmetrically.

The share price p is determined by market clearing. Total demand must therefore correspond to the fixed supply of one: $1 = \lambda q_i^* + (1-\lambda)q_j^*$. According to equation (8), direct and delegating investors have the same demand, $q_i^* = q_j^*$. Market clearing therefore implies $1 = q_i^* = q_j^*$. Thus, the equilibrium share position is pinned down by the fixed aggregate supply, while the price adjusts so that both investor types optimally demand this quantity. The remaining equilibrium variables $p^*$, $m_i^*$, and $a^*$ can now be determined conclusively. The equilibrium price of the share $p^*$ can be determined by transforming

equation (8): $p^* = \frac{\beta c\mu+\gamma A_i+\lambda\gamma A_j+\beta\lambda}{c+(1+\lambda)\gamma} - \tau\sigma^2$. This can be simplified to $p^* = E[x] - \tau\sigma^2$. The optimal price is therefore determined by the expected cash flow over $a^*$ minus the risk premium. If the expected cash flow increases, the price also rises. Greater risk aversion on the part of investors or a higher general level of risk has a dampening effect. Preferences and influence therefore only have an effective impact on the corporate action level and not through changes in investors' portfolios. Substituting the result $q_i^* = q_j^* = 1$ into formula (5) for the optimal intermediary influence $m_i^*$, the following equilibrium is obtained: $m_i^* = \frac{\beta\lambda+\gamma(A_i-\mu)+\lambda\gamma(A_j-\mu)}{c+(1+\lambda)\gamma}$. This is a weighted mix of the monetary cash flow incentive on the one hand and the non-monetary preferences of the intermediary $A_i$ and the delegating investors $A_j$ on the other. If the delegating share $\lambda$ or the efficiency $\beta$ increase, then the cash flow-related effort also increases. If the preferences deviate more strongly from the manager's base preference $\mu$, then the intermediary exerts more influence, for example for ESG reasons. Higher influence costs c led to the opposite effect. If the relevance of non-monetary preferences $\gamma$ increases, the intermediary places more weight on preference alignment relative to the cash-flow motive. The direction of the effect is therefore ambiguous. Influence increases only if the weighted preference target is sufficiently high relative to the action level induced by the cash-flow motive; otherwise, a higher $\gamma$ can reduce positive influence or strengthen negative influence. This corporate action corresponds to the following structure in equilibrium: $a^* = \mu + m_i^*$ where it remains the case that direct investors do not exert any influence $m_j$ of their own. If we now substitute the optimal intermediate influence $m_i^*$ into the equilibrium, we obtain $a^* = \frac{c\mu+\gamma A_i+\lambda\gamma A_j+\beta\lambda}{c+(1+\lambda)\gamma}$. Thus, equilibrium action is no longer determined by the manager's baseline preference $\mu$ alone. Instead, $a^*$ reflects a weighted combination of the manager's baseline preference, the intermediary's own non-monetary preference, the delegated investors' preferred action, and the cash-flow-related incentive. As the delegated share $\lambda$ increases, the preference of delegating investors receives more weight in the intermediary's objective function and therefore exerts a stronger influence on equilibrium action.

These equilibrium components are summarized in Proposition 1. It characterizes the equilibrium for a given fraction of delegating investors $\lambda$, in which the intermediary exerts influence on behalf of delegating investors, while direct investors exert no personal influence. In equilibrium, the stock price $p^*$, the intermediary's optimal influence effort $m_i^*$, the manager's action $a^*$, and the investors' identical portfolio holdings are jointly determined. An increase in the delegated share raises the weight the intermediary places on investors' preferences relative to its own preferences and the cost of influence effort. This implies a potentially counterintuitive result: direct investors' preferences may be better reflected in equilibrium when direct investors themselves play a weaker role in the market.

Now that the equilibrium characteristics have been determined in Proposition 1, it is time to examine the effects of the central model parameters on the stock price. Corollary 1 first considers effects that are clear-cut. Investors' risk aversion $\tau$ and the variance of cash flow $\sigma^2$ lead to a reduction in price.

According to the standard logic of a one-period asset-pricing model, higher risk aversion and higher uncertainty lead to a higher risk premium demanded by investors. This classic valuation component remains anchored in the model, independent of intermediaries and non-monetary preferences. On the other hand, $\beta$, the productivity of the company's actions on the company's cash flow has a positive effect. The benefit of additional influence increases because a change in the action then has a stronger positive effect on the expected cash flow, thus increasing the intermediary's incentive to exert more influence. More influence $m_i^*$ increases the action level $a^*$ and thus the cash flow and the share price $p^*$. Influence therefore becomes more economically relevant due to the increased cash flow effectiveness of the action. The share price also rises with the manager's baseline preference $\mu$, which, alongside influence, is a key component of price formation. This is because the level of action is higher without additional influence, which also increases the expected cash flow and thus the price. The desired action levels $A_i$ of the intermediary and $A_j$ of the delegating investors have an indirect effect on the price via the influence channel. Higher values cause the intermediary to exert more positive influence, which then results in a higher $a^*$, higher expected cash flow, and a higher share price. The prerequisite is that $\beta > 0$ and $\gamma > 0$ apply. Non-monetary preferences, which may also include sustainability aspects, only become relevant to the price when they are translated by the intermediary into a cash flow-relevant corporate action. Overall, Corollary 1 shows that the share price rises with factors that increase the expected productive corporate action and thus the expected cash flow, while it falls with higher perceived risk. While $\tau$ and $\sigma^2$ represent the classic risk discount, $\beta$, $\mu$, $A_i$, and $A_j$ affect the valuation via the influence and action channels. Corollary 1 thus systematizes the pricing logic already laid out in Proposition 1 along with clear parameter effects.

However, there are also model parameters that do not have a clear effect on the share price. These are analyzed in Corollary 2. Ambiguous means that the direction of the effect depends on the direction in which the influence chosen by the intermediary shifts the company's actions and thus the expected cash flows. It is not the mere size of a parameter that is decisive, but the underlying preference constellation. The first parameter is the delegation share $\lambda$. On the one hand, a higher delegation share means that the intermediary acts on behalf of more investors. This generally increases the weight of the monetary cash flow motive for exerting influence. At the same time, however, it also increases the weight of the level of action $A_j$ desired by the delegating investors in the intermediary's objective. If these investor preferences are compatible with a higher level of action, more delegation leads to more positive influence, higher expected cash flow, and thus a higher share price. If, on the other hand, investors prefer a sufficiently low or even negative level of action, an increase in delegation can reduce the influence of the intermediary and thus lower expected cash flow and price. Specifically, it depends on the following threshold: If $\frac{\partial p^*}{\partial \lambda} > 0 \Leftrightarrow \beta(c+\gamma) + \gamma^2(A_j - A_i) + c\gamma(A_j - \mu) > 0$, then the share price rises because of more delegation. Otherwise, it falls. Equivalently, this condition can be rewritten in terms of the investors' desired action $A_j$. An increase in $\lambda$ reduces share price when delegating investors

prefer a sufficiently low managerial action, i.e., when $A_j < \frac{\gamma A_i + c\mu}{\gamma + c} - \frac{\beta}{\gamma}$. In other words, when investors' non-monetary preferences outweigh their monetary preferences, a higher delegation share reduces price. Thus, a higher delegation share does not mechanically increase firm value but makes the equilibrium more sensitive to the direction of investors' preferences.

Another parameter in the model with an ambivalent effect is the influence costs c. Intuitively, higher influence costs should lead to the intermediary exerting less influence. If the intermediary's influence adds value, then the company's action, expected cash flows, and consequently also the share price will fall. However, if the intermediary exerts a negative influence in equilibrium, i.e., pushes the manager to a lower level of action, then an increase in the influence costs c can raise the price. This requires that the combined preferred action of the intermediary and the delegating investors lies below the manager's baseline preference, $\frac{A_i + \lambda A_j}{1+\lambda} < \mu$. More precisely, it must be sufficiently low for the preference-driven negative influence to dominate the positive cash-flow motive. In that case, the intermediary pushes the manager toward a lower action level, so that equilibrium influence is negative, $m_i^* < 0$, and expected cash flows are reduced. A higher level of influence costs then weakens this negative pressure and moves $m_i^*$ closer to zero. The value-reducing influence becomes smaller in amount, and the action, cash flows, and share price rise. Higher influence costs thus have a dampening effect on both value-enhancing and value-reducing influence. The threshold value is derived from the first-order condition of the share price in c: For $\frac{\partial p^*}{\partial c} > 0 \Leftrightarrow \ \gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \beta\lambda < 0$ the share price $p^*$ rises. Otherwise, it falls.

The third parameter with an ambiguous effect is the relevance of non-monetary preferences γ. A higher γ means that the intermediary is more sensitive to deviations in the company's actions from its own preferences or those delegated by investors. This makes it more preference-driven and relatively less cash flow-oriented. If the desired levels of action by the intermediary $A_i$ or the delegating investors $A_j$ are above the manager's baseline μ and are also compatible with higher cash flows, then a higher γ leads to a more positive influence, a higher level of action, and thus a higher share price. If, on the other hand, the desired actions are below the baseline or move the manager away from a cash flow-friendly action, a higher γ can lead to a stronger negative influence and thus to a lower share price. For $\frac{\partial p^*}{\partial \gamma} > 0 \Leftrightarrow$ $c(A_i - \mu) + c\lambda(A_j - \mu) - \beta\lambda(1 + \lambda) > 0$ the share price rises, otherwise it falls. Equivalently, this condition means that the combined preferred action of the intermediary and the delegating investors must be sufficiently above the manager's baseline, namely above $\mu + \frac{\beta\lambda}{c}$, for a higher γ to raise price. If this combined preferred action lies below that threshold, a stronger emphasis on non-monetary preferences leads the intermediary to choose a more negative level of influence and thus lowers price. This is straightforward when the combined preferred action is already below μ. But even if it lies above the manager's baseline, the price can still fall if it remains below the action level that would be induced by the cash-flow motive alone. A higher γ shifts the influence of the intermediary more toward

preference-oriented behavior. The value of the company is only increased if the preference-oriented influence does not conflict with a cash flow-increasing action.

Corollary 2 shows overall that key parameters do not have a monotonic effect on the share price. Neither more delegation nor higher influence costs nor a greater relevance of non-monetary preferences are per se value-enhancing or value-reducing. What is decisive is whether the resulting change in influence shifts the company's action in a cash flow-favorable or cash flow-unfavorable direction. The economic core thus lies not in the mere strength of intermediation, but in the direction of the bundled influence. Taken together, these results caution against an overly simplistic interpretation of ESG, according to which more delegation or stronger non-monetary preference orientation automatically leads to higher firm value.

Proposition 1 and the two corollaries have shown how delegation to a financial intermediary changes influence, corporate action, and stock price. Now we need to consider whether delegation is attractive to individual investors under these conditions. To do this, the model now assumes that the delegating investors bear the intermediary's costs or must compensate him for his activity. This corresponds to a participation constraint for the intermediary. Delegation is now no longer free of charge, instead, the costs are divided among the delegating investors and allocated to them privately. Under this assumption, the certainty equivalent $CE_i^*$ of a delegating investor in equilibrium corresponds to the aggregate utility of the intermediary $u_i$ divided by the number of delegating investors $\lambda$. Substituting the previously determined equilibrium values yields the following expression for one delegating investor:

$$CE_i^* = \frac{u_i}{\lambda} = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\left(\frac{\beta^2\lambda^2 + \lambda\gamma c(\mu - A_j)^2 + \lambda\gamma^2(A_i - A_j)^2 + c\gamma(\mu - A_i)^2}{\lambda(c + \gamma + \lambda\gamma)}\right). \qquad (9)$$

The first component is the risk term $\frac{1}{2}\tau\sigma^2$, which applies equally to all investors in the model. The second major term is the negative cost term, which is scaled with $\lambda(c + \gamma + \lambda\gamma)$ in the denominator. This part bundles the specific costs of the delegation. The $\lambda$ in the denominator shows that the costs of the intermediary are distributed and that the larger the delegating investor group, the more these costs can be shared. The numerator consists of four components: The expression $\beta^2\lambda^2$ reflects the monetary cash flow motive. This shows that even purely cash flow-motivated influence is not free for the delegators but incurs costs. The second term $\lambda\gamma c(\mu - A_j)^2$ captures the costs arising from a preference deviation between delegating investors and the manager's baseline preference. The greater this deviation, the higher the incentive to use expensive influence to move the manager closer to the desired preference. Delegation becomes particularly expensive when the desired action deviates significantly from the baseline. The third component $\lambda\gamma^2(A_i - A_j)^2$ reflects the difference in preferences between the interested intermediary and the delegating investors. This resulting loss of utility shows that the delegation relationship is also relevant. The greater the difference between $A_i$ and $A_j$, the lower the $CE_i^*$ of the delegating investor. The last part $c\gamma(\mu - A_i)^2$ also captures the preference deviation between the

desired action of the intermediary and the manager's baseline. The delegator therefore also bears a proportion of the costs incurred by the intermediary's efforts to influence the situation to enforce his own preference $A_i$. On the one hand, delegating investors benefit from the equilibrium effects of the influence they exert, but on the other hand, they also have to bear the costs of this influence privately.

The situation is somewhat different for direct investors, who enjoy the same benefits from the effects of influence but do not bear any costs for it. The certainty equivalent of a direct investor in equilibrium is as follows:

$$CE_j^* = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\gamma\frac{\left(\beta\lambda + c(\mu - A_j) + \gamma(A_i - A_j)\right)^2}{(c + \gamma + \lambda\gamma)^2}. \quad (10)$$

Direct investors bear the same risk discount and are equally affected by the manager's equilibrium action. The second term measures the disutility of direct investors based on the difference between their preferred corporate action $A_j$ and the equilibrium action $a^*$ realized. Unlike delegating investors, it does not include any costs of exercising influence, as direct investors are affected by the outcome but do not pay for intermediation.

Now consider the special case where there are no non-monetary preferences, i.e., $\gamma = 0$. The certainty equivalent of direct investors then corresponds to the basic model without influence: $CE_{j_{\gamma=0}^{*|}} = \frac{1}{2}\tau\sigma^2$. However, delegating investors must continue to bear the equilibrium costs of influence, even though this is purely cash flow-motivated. Even without ESG motivation, delegation remains costly. The certainty equivalent of the delegating investor with $\gamma = 0$ is then as follows: $CE_{i_{\gamma=0}^{*|}} = \frac{1}{2}\tau\sigma^2 - \frac{\beta^2\lambda}{2c}$.

The model also shows that a mismatch in preferences between managers and intermediaries or between managers and investors can lead to greater influence. However, the resulting cash flow effects are already included in the price, so that the additional influence appears primarily as a cost factor from the perspective of delegating investors. Delegating investors therefore benefit when the preferences of the intermediary closely match the baseline preferences of the manager. This is also summarized in Corollary 3 of the model. The smaller the factor $(\mu - A_i)^2$ is, the better off the intermediary and the delegating investor are, as delegation becomes relatively less costly. What is relevant, therefore, is not only that the intermediary can bundle influence, but also the preferences with which he exercises this influence.

However, an intermediary's non-monetary preferences do not necessarily have to be disadvantageous. They can also be advantageous if an increase in $\gamma$ increases the certainty equivalent of the delegating investors, i.e. if $\frac{dCE_i^*}{d\gamma} > 0$ applies. This is particularly the case if the intermediary, delegating investors, and managers have the same preferences: $A_i = A_j = \mu$. In this case, a higher $\gamma$ can increase delegating investors' expected utility because it weakens the intermediary's incentive to exert costly cash-flow-increasing influence. If, in addition, the proportion of delegating investors $\lambda$ rises, the effect on utility

remains ambiguous overall, but delegating investors may benefit because influencing costs can be spread across more investors.

If we now compare the two certainty equivalents $CE_i^*$ and $CE_j^*$, we obtain the following key result: $CE_i^* \leq CE_j^*$. As already shown, all investors benefit from the same price and cash flow effects, and both types of investors also hold the same portfolios. Investors who delegate do not obtain any additional ex-ante benefit from the intermediary's influence, because its actions are already anticipated by the market and reflected in the equilibrium price. Delegation therefore does not generate additional performance, but only the extra costs of compensating the intermediary. There is a cost asymmetry. Every investor therefore has a rational incentive to invest directly rather than delegate. This result is stated in Proposition 2: No investor will rationally delegate to the intermediary if there are no additional market frictions. The intermediary manages to overcome the free-rider problem identified in the benchmark model. This model was based on the fact that influence is always costly for individual investors, but their private benefit from it remains negligible. Individual investors free ride on each other. The intermediary solves the problem by acting on behalf of a group of delegating investors, thus overcoming the atomistic nature of the model. However, this does not create a stable delegation equilibrium, but rather a new, second free-rider problem. Direct investors benefit from the intermediary's channel of influence, but at the same time avoid compensating them for their efforts. They therefore free ride on the delegating investors. The original free-rider problem is thus not completely solved but replaced economically by another. This implies that ESG-related influence is not impossible in principle, but it cannot be sustained endogenously under these conditions. Without additional market friction, no investor has an incentive to delegate, so the model ultimately collapses back to the no-intermediary benchmark from chapter 3.2.1. in which investors' non-monetary preferences do not affect corporate action or price.

### 3.2.3 Endogenous Delegation

Since the second free-rider problem prevents delegation from being sustained endogenously, ESG-related influence cannot arise without additional friction. Interior delegation can arise once direct investment becomes costly. In the model, intermediation does not arise from the existence of ESG preferences alone, but only when such market frictions exist. Net transaction costs $\kappa$ are now introduced into the model, which must be paid by direct investors to participate in the market. The intermediary also bears the transaction costs $\kappa$, but they are negligible per capita when there is a measurable mass of delegating investors. The delegation decision is thus endogenized and becomes the result of an optimization calculation. Previously, we analyzed what happens when $\lambda$ is exogenously specified. Now the equilibrium fraction of delegating investors can be determined.

An investor now compares delegation via the intermediary with direct investment net of the transaction cost $\kappa$. The equilibrium of $\lambda$ is determined by the indifference condition $CE_j^* - \kappa = CE_i^*$. At this point,

the investor is indifferent between delegation and direct investment. Delegation is chosen if the advantage of avoiding direct investment costs κ offsets the costs of the intermediation channel. If we now insert the certainty equivalents of the direct investors $CE_j^*$ and the delegating investors $CE_i^*$, i.e., equations (9) and (10), and solve for the direct investment cost κ, we get:

$$\kappa = \frac{1}{2\lambda} * (\gamma(a^* - A_i)^2 + c(m_i^*)^2). \quad (11)$$

The transaction costs of direct investment are therefore set equal to the costs of intermediation borne by each delegating investor. This cost term of delegation consists, on the one hand of misalignment costs arising from the deviation between the equilibrium action $a^*$ and the preference of the intermediary $A_i$. On the other hand, the direct costs of exerting influence are also added. The factor $\frac{1}{2\lambda}$ shows that the more investors delegate, the more these delegation costs can be distributed. However, investor preference $A_j$ is not recorded as a separate term, but only indirectly via its effect on the optimal influence of the intermediary $m_i^*$ and the equilibrium corporate action $a^*$. Endogenous delegation does not depend directly on investors having stronger ESG preferences, but on whether stronger non-monetary preferences make delegation more expensive or cheaper. It therefore makes sense to look at these indirect effects of investor preference on the optimal proportion of delegating investors λ. Proposition 3 shows the corresponding core result: The delegation rate λ falls for higher values of investor preference $A_j$. For sufficiently low values of $A_j$, the proportion increases. The threshold value at which $A_j$ is large enough for λ to fall is: $A_j > \frac{(c\gamma\mu + \gamma^2 A_i - c\beta - \beta\gamma)}{\gamma(c+\gamma)}$. The relationship between $A_j$ and λ is therefore not monotonic but can be explained in economic terms. If investor preference $A_j$ is already at a high level, a further increase in $A_j$ strengthens the incentive for the intermediary to exert influence. This further increases the costs of influence and makes delegation to the intermediary less attractive. As a result, the proportion of delegating investors λ falls. However, if $A_j$ is initially low a further increase in $A_j$ raises the relative weight on investor preferences and lowers the relative importance of the intermediary's own preference $A_i$. This reduces the optimal influence $m_i^*$ and thus also the influence costs. Delegation becomes cheaper for the investor and therefore more attractive. The proportion of investors who delegate increases. Proposition 3 shows that stronger investors preferences do not necessarily translate into more delegation, because their effect depends on how they change the intermediary's equilibrium influence costs.

After analyzing how investor preference affects the fraction of delegating investors, the next step is to examine how it affects the equilibrium corporate action $a^*$ as the model's ESG-relevant outcome. Proposition 4 considers two opposing channels in the effect of $A_j$ on $a^*$. The first channel is the direct influence channel: an increase in investor preference $A_j$ strengthens the intermediary's incentive to influence the manager and thereby tends to increase $a^*$. This is countered by the indirect delegation channel: when a higher $A_j$ raises the costs borne by delegating investors, delegation becomes less

attractive and the equilibrium proportion of delegating investors $\lambda$ decreases. This weakens the intermediary's collective influence and tends to lower $a^*$. Proposition 4 further states that when many investors delegate, i.e., when $\lambda$ is large, or when the costs of direct investment, $\kappa$, are sufficiently low, the indirect channel dominates, so that corporate action $a^*$ declines as investor preference increases. This results in lower expected cash flow and a lower share price $p^*$. If, on the other hand, few investors delegate, i.e., $\lambda$ is small, the direct channel dominates, so that $a^*$ increases with $A_j$, which is reflected in a higher expected cash flow and share price $p^*$. This results in a potential single-peaked relationship between investor preferences and corporate action. Proposition 4 thus shows that stronger investor ESG preferences do not automatically translate into stronger ESG-related corporate action. Because the effect of $A_j$ on $a^*$ is determined by two opposing channels, the implications for expected cash flows and the equilibrium share price $p^*$ remain ambiguous.

### 3.2.4 Multiple Firms and Portfolio Effects

The model analysis to date has considered only a single company. While this is helpful for better analytical understanding, it is only of limited realism for an asset manager. Financial intermediaries hold portfolios that include several companies. As soon as an intermediary holds shares in several firms, influencing one company may not only change that firm's own cash flow, but also the cash flows of other companies in the intermediary's portfolio. These resulting portfolio effects or cross-firm externalities, which then change the intermediary's incentives for influence and delegation, will be discussed analytically in this chapter.

In the course of this model extension, a second risky company is introduced, so there are now two risky firms $f \in \{1, 2\}$. Thus, the focus is no longer on an isolated investment project, but on a portfolio in which interdependence between companies plays a role. The cash flow of the two firms is $x_f = \beta_f a_1 + \varepsilon_f$. These are modeled in such a way that they are each dependent on the actions of firm 1. Firm 2 is therefore not influenced by a separate managerial action, but its cash flow is affected by the action chosen in firm 1. The cash flows remain stochastic because they continue to depend on a random shock: $\mathrm{Var}(\varepsilon_f) = \sigma_f^2$ and $\mathrm{Cov}(\varepsilon_1, \varepsilon_2) = \rho\sigma_1\sigma_2$.

The key innovation compared to the previous one-firm model is described by the term $\beta_2 a_1$: the actions of the manager of company 1 also affect the cash flows of company 2. This means that intermediation becomes a question of influence on an entire portfolio. Regarding the parameters for the effects of the action on cash flows, the following is assumed: $\beta_1 > 0$ and $\beta_1 + \beta_2 > 0$. The effect of the action for company 1 is therefore always positive. In addition, the overall effect on the portfolio level always remains positive, even if the effect on company 2 may be negative. Externality is therefore not limited to positive effects. Firm 2 can both benefit from and be harmed by action $a_1$: $\beta_2 \in (-\beta_1, \infty)$.

To simplify matters, however, this model extension does not include a separate manager in firm 2 and therefore no corporate action $a_2$. This prevents the model from having to consider a second direction of

externality. The cross-firm externality is modeled only unilaterally: $a_1 \rightarrow x_1, x_2$. This is sufficient to demonstrate the economic force at work. Since the situation of firm 1 remains unchanged, the manager continues to choose the corporate action as follows: $a_1 = m_1 + \mu_1$. Another simplifying assumption, compared to the main model, is that investors themselves have no non-monetary preference over the manager's action in this extension. This removes the investors' preference term from the certainty equivalent and makes $A_j$ irrelevant. The purpose of this assumption is to isolate the portfolio and externality channel more clearly. The following standard assumptions remain valid: Both companies are traded in a competitive market, the supply of shares per firm is equal to one, and there are still atomistic and risk-averse investors of mass 1. They still have a CARA utility function, and there is aggregate risk aversion in the market at the level $\tau$.

Looking first at the direct investors, $q_{j1}$ is their holding in firm 1 and $q_{j2}$ denotes their holdings in firm 2. The share prices of the two companies are defined as $p_1$ and $p_2$. The certainty equivalent of the direct investors in the two-firm case is therefore as follows:

$$CE_j = q_{j1}(\beta_1 a_1 - p_1) + q_{j2}(\beta_2 a_1 - p_2) - \frac{1}{2}\tau\left(q_{j1}^2\sigma_1^2 + q_{j2}^2\sigma_2^2 + 2\rho\, q_{j1}q_{j2}\sigma_1\sigma_2\right). \quad (12)$$

It consists of the financial returns from the two investments. The second part is the classic risk term, but now for the two-asset portfolio. New compared to the single-company case is the covariance term $2\rho\, q_{j1}q_{j2}\sigma_1\sigma_2$, which reflects the correlation effects. As in the basic model, individual direct investors continue to have no influence on the manager. Their optimal influence remains $m_j^* = 0$. Accordingly, no costs of influence appear in the certainty equivalent. In accordance with the simplifying assumption of this extension, there is also no non-monetary utility term for direct investors, because they have no non-monetary preference over the manager's action. In addition to direct investors, there is also a proportion $\lambda \in [0, 1]$ of investors who delegate the investment decision to the intermediary. The intermediary now optimizes the utility simultaneously across the influence and portfolio sizes in two assets. It maximizes the utility function from the base model, i.e., equation (4), only now extended to the portfolio case. In doing so, it also internalizes the certainty equivalent of the delegating investor but scaled by $\lambda$. Accordingly, using the certainty equivalent from equation (12), the intermediary's utility in the portfolio case can be written as follows:

$$u_i = \lambda CE_j - \frac{1}{2}\gamma(a_1 - A_i)^2 - \frac{1}{2}c\, m_i^2. \quad (13)$$

As in the base model, the intermediary internalizes the utility of delegating investors, scaled by $\lambda$, while also accounting for its own non-monetary preference over the manager's action and the private costs of exerting influence. Solving the intermediary's optimization problem yields the optimal demands for both assets as well as the equilibrium influence level. This influence level determines the manager's equilibrium action, which in turn affects expected cash flows in both firms. Because the portfolio decision of direct investors and the intermediary is based on the same trade-off between expected payoffs and risk, delegating and direct investors hold the same portfolio in equilibrium. Using these

demands in the market-clearing conditions results in $p_f = \beta_f a_1^* - \tau(\sigma_f^2 + \rho\sigma_1\sigma_2)$. Thus, the price of each asset equals its expected cash flow under equilibrium managerial action minus a risk premium. The economic relevance of the externality lies not in a different asset allocation, but in the fact that holdings in firm 2 strengthen the intermediary's incentive to influence firm 1. The optimal action of the manager from company 1 continues to consist of his basic preference and the optimal influence of the intermediary: $a_1^*(m_i^*) = \mu_1 + m_i^*$. Solving the intermediary's optimization problem then yields the optimal level of influence: $m_i^*(q_{i1}^*, q_{i2}^*) = \frac{\gamma(A_i - \mu_1)}{c+\gamma} + \frac{\lambda}{c+\gamma}(\beta_1 + \beta_2)$. The first term in $m_i^*$ represents the deviation between the manager's basic preference and the desired action $A_i$. The greater the distance, the stronger the incentive for the intermediary to exert influence. The second term complements the new multiple-firms mechanism, as the influence on the company now affects the entire portfolio via $(\beta_1 + \beta_2)$. Holding shares in firm 2 therefore creates an additional incentive to influence the manager of firm 1. However, the effect of $\beta_2$ is relevant here: if $\beta_2 > 0$, this means that company 2 benefits from a higher level of action $a_1$. In this case, the intermediary increases its influence because it now increases the cash flow of both companies. However, if $\beta_2 < 0$, then the externality has the opposite effect and dampens the incentive to exert influence. The intermediary exerts influence not only because of the actual target company, but also partly because of the portfolio-related additional return from the second firm.

However, delegating investors fare worse despite higher cash flows when externalities increase. The reason for this is that the additional return is priced in. This means that all investors benefit from a higher company value. The intermediary's incentive to exert more influence leads to higher influence costs. These continue to be borne solely by the delegating investors. This is precisely what worsens the relative position of delegating investors compared to direct investors. If higher externalities put delegating investors at a disadvantage, this has an impact on the endogenous delegation decision in the next step. A higher externality $\beta_2$ automatically leads to a smaller proportion of delegating investors $\lambda$, because delegation becomes less attractive. On the one hand, a positive externality makes intermediation more productive in terms of influence, but on the other hand, it becomes even more attractive for direct investors not to delegate, so that they do not have to bear any costs but still benefit from the higher cash flows. This again creates a free-rider problem. More externality is therefore not automatically better. In extreme cases, the intermediary can even benefit from investments in assets with negative externalities, because these reduce the optimally exercised, cost-intensive influence. However, this could in turn conflict with the fiduciary duties of intermediaries towards end investors. Since positive portfolio externalities can intensify costly influence and thereby worsen the delegation problem, the next step is to examine whether a self-imposed commitment not to hold asset 2 can mitigate this distortion. This approach is comparable to a divestment strategy, which has already been analyzed in the theoretical foundations of this paper. Under these assumptions, the equilibrium demand for the two companies changes significantly. Direct investors and the intermediary no longer hold the same

portfolios. While, by definition, the intermediary's demand for firm 2 is zero, i.e., $q_{i2}^{\dagger} = 0$, there are the following additional demands:

$$q_{i1}^{\dagger} = 1 + \rho\frac{\sigma_2}{\sigma_1} \tag{14}$$

$$q_{j1}^{\dagger} = 1 - \rho\frac{\sigma_2}{\sigma_1} \cdot \frac{\lambda}{(1-\lambda)}, \text{and} \tag{15}$$

$$q_{j2}^{\dagger} = \frac{1}{(1-\lambda)}. \tag{16}$$

Because direct investors, unlike intermediaries, continue to hold shares in firm 2, their demand for asset 2 also influences their demand for asset 1. Accordingly, direct investors must hold all shares in company 2 in equilibrium. The equilibrium allocation of asset 1 thus shifts in favor of the intermediary and the delegating investors. The correlation coefficient ρ, i.e., the extent to which the random cash flow components of both companies move in the same direction plays an important role in the optimal portfolio decision of direct investors. If $\rho > 0$, while direct investors must hold all shares of asset 2, then the additional holding of asset 1 increases their overall risk. Conversely, according to Eq. (14), this reduces their demand for asset 1. In equilibrium, the intermediary has to hold more shares in firm 1. This in turn increases its incentive to exert more influence. The optimal influence of the intermediary, under the commitment that it will not include any shares in company 2 in the portfolio, is: $m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) = \frac{\gamma(A_i - \mu_1)}{c+\gamma} + \frac{\lambda\beta_1}{(c+\gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)$. In the case of commitment, the direct influence of $\beta_2$ disappears. However, the comparison between commitment and no-commitment is particularly interesting, as it shows under which conditions the omission of asset 2 leads to more or less influence. The difference is:

$$m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) - m_i^{*}(q_{i1}^{*}, q_{i2}^{*}) = \frac{\lambda}{(\sigma_1(c+\gamma))}(\rho\beta_1\sigma_2 - \sigma_1\beta_2). \tag{17}$$

Since the first term $\frac{\lambda}{(\sigma_1(c+\gamma))}$ is positive by definition, the sign of the difference depends only on the factor $(\rho\beta_1\sigma_2 - \sigma_1\beta_2)$. If $\rho\frac{\sigma_1}{\sigma_2} > \frac{\beta_2}{\beta_1}$ applies, then the difference is positive. The effect of the commitment to exclude asset 2 is determined by two opposing forces. If the term $\rho\frac{\sigma_1}{\sigma_2}$ is high in inequality, the correlated risk reduces the willingness of direct investors to hold asset 1. The intermediary then holds more shares of asset 1 due to the assumption of market clearance and therefore has stronger incentives to exert influence. In contrast, $\frac{\beta_2}{\beta_1}$ captures the relative incentive to exert influence from asset 2. The stronger the incentive to exert influence via asset 2 in the case of no-commitment, the more advantageous the commitment is because it eliminates this additional channel of influence that is not directed at the target company. Commitment therefore makes sense above all if it reduces distorted incentives to exert influence and concentrates influence more strongly on asset 1.

Now that we have shown under what conditions commitment increases or decreases the intermediary's influence, the next step is to clarify how this altered structure of influence is reflected in the equilibrium prices and expected utility. Methodologically, the price formulas in the commitment case are derived from the investors' demand functions, which are derived from the certainty equivalent of the direct investors and the constrained optimization problem of the intermediary and then substituted into the market clearing conditions. For the commitment case, the equilibrium prices of the two assets are therefore:

$$p_1 = \beta_1\left(\frac{A_i\gamma + c\mu}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)\right) - \tau\left(\sigma_1^2 + \rho\sigma_{1\sigma_2}\right) \text{ and} \tag{18}$$

$$p_2 = \beta_2\left(\frac{A_i\gamma + c\mu}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)\right) - \tau\left(\left(\frac{1 - \lambda\rho^2}{1 - \lambda}\right)\sigma_2^2 + \rho\sigma_{1\sigma_2}\right). \tag{19}$$

A key implication of these pricing equations is that $\beta_2$ no longer influences the price of asset 1 in the commitment case. The additional externality effect from asset 2 thus disappears for p1. It follows that the expected utility of the intermediary also becomes independent of $\beta_2$, since under commitment the intermediary holds only asset 1. Furthermore, the expected utility of the direct investors is also independent of $\beta_2$, because the expected cash flow from asset 2 is fully priced in at equilibrium: If $\beta_2$ rises, both the expected cash flow and the price of firm 2 increase by the same amount, so that no additional expected utility arises from this. At the same time, commitment removes the indirect influence channel through asset 2, since the intermediary can no longer benefit from holding firm 2 when exerting influence on firm. Economically, this means that in the commitment case, $\beta_2$ no longer directly affects investors via market prices or expected utility. This case thus differs fundamentally from the no-commitment case, in which a stronger externality still had a direct impact on influence, prices, and the attractiveness of delegation.

Since $\beta_2$ does not directly affect investors in the commitment case, neither through market prices nor through expected utility, the focus now shifts to the delegation decision itself. Proposition 5 shows that the proportion of delegating investors increases if the intermediary commits not to invest in asset 2, provided that $\beta_2$ and $\kappa$ are sufficiently large. The economic intuition behind this is that a high $\beta_2$ in the non-commitment case creates an additional incentive to influence via asset 2: influencing firm 1 is then worthwhile not only because of its own cash flows, but also because of the positive effect on the second asset, which simultaneously increases the influence costs borne by the delegating investors and may reduce the fraction of delegation. The commitment cuts off precisely this additional channel and thus acts, when $\beta_2$ is large and positive, as a self-binding constraint toward reduced influence effort. If direct investment simultaneously becomes less attractive due to high costs $\kappa$, delegation gains relative attractiveness and the delegation $\lambda$ increases. The central added value of this extension thus lies in the fact that a broader portfolio does not automatically generate better delegation results: Without restrictions, influence incentives are partially distorted by the second asset, whereas commitment

removes the additional influence channel created by holding asset 2. In this sense, the commitment case can be interpreted as a self-binding mechanism that limits excessive influence incentives, without implying that portfolio constraints are generally superior.

## 3.3 Numerical Illustration

In the preceding Section 3.2, the model's key results are analytically derived following Friedman and Heinle (2020). This section aims to illustrate these results numerically. The most important economic mechanisms will be made visible through selected parameter combinations, and the underlying relationships will be presented in a way that is more intuitively understandable. Focus is placed on results and effects that are non-trivial, ambivalent, or non-monotonic. First, a common frame of reference for parameter selection is established so that the various numerical illustrations can build upon one another and be made comparable. Additional parameters are then introduced and defined as needed for each illustration. First, the manager's base preference, their ESG preference, is considered relative to the firm's action as $\mu = 0$. This allows for a better interpretation of the deviations from the desired actions of the intermediary $A_i$ and the investor $A_j$. Positive values for the differences $A_i - \mu$ and $A_j - \mu$ then directly imply that investors or intermediaries exhibit a stronger ESG preference than the manager. The parameter $\gamma$, which determines how strongly the investor weighs his non-monetary preferences or the deviation of his desired action from the actual action, is set to 1. A higher value means that the investor's non-monetary goals are relatively more important to them than pure cash flow. This definition serves to normalize this preference weight and facilitates interpretation. The cost parameter of direct influence $c$ is also normalized to 1. The same applies to $\beta$, i.e., the parameter that determines the extent to which the corporate action influences the expected cash flow. This relationship between actual corporate decisions and financial performance is defined as $\beta = 1$. This baseline establishes a common numerical starting point for illustrating the most important mechanisms in the model.

The first scenario to consider illustrates the investor's initial portfolio decision in the base model at $t_1$. It serves as the starting point for individual optimization and shows how the investor chooses his financial exposure to the company. It is the first of two decisions before the question of whether the investor also wishes to actively influence the company in period $t_2$ is considered. In the basic model, the investor has a certainty equivalent $CE_j$ that he wishes to maximize. He chooses the portfolio size $q_j$ to maximize utility, whereby only the monetary return and the risk penalty of the portfolio depend directly on this parameter. This first decision is now made numerically tangible. Additional assumptions for the relevant parameters are made as follows: The corporate action is: $a = 1$. The action is assumed to be given, since the focus is not on the decision regarding influence, but only on the portfolio decision. Furthermore, the following applies to the stock price: $p = 0{,}85$. The stock price is below the expected cash flow, resulting in a positive expected surplus. The investor is also, by definition, risk-averse and has a risk aversion parameter of $\tau = 2$. The risk aversion is chosen because it has a noticeable effect on

the portfolio choice. Furthermore, the variance of the cash flow is set to $\sigma^2 = 0{,}1$. The risk thus generates a visible but not dominant risk penalty.

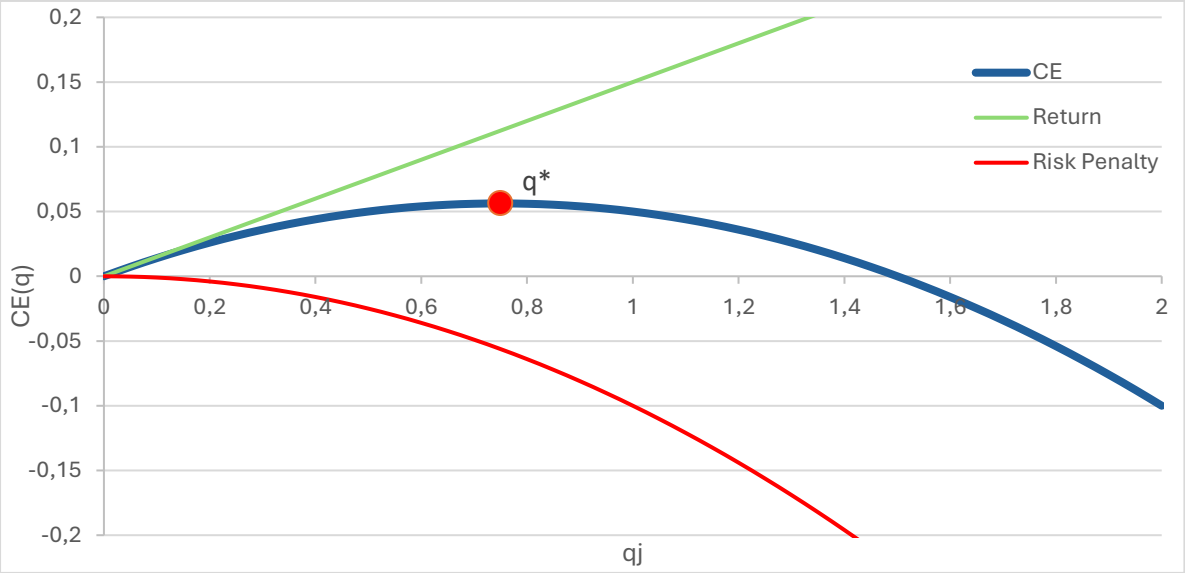


Figure 1. Portfolio choice in the benchmark model.

This illustration shows a return curve in green that rises linearly with $q_j$. Thus, the larger the portfolio, the higher the expected monetary return from it. This follows logically from the expression $q_j(\beta a - p)$ in the certainty equivalent. The risk penalty, on the other hand, increases quadratically with respect to $q_j$ according to the term $\frac{1}{2}\tau q_j^2\sigma^2$ and therefore reduces the certainty equivalent more strongly as the portfolio size grows. This expression is represented by the red curve. Thus, each additional unit of the portfolio increases the risk disproportionately. The resulting blue curve for the certainty equivalent $CE_j$ accordingly represents a trade-off between the positive monetary return and the negative risk penalty. The trajectory of this utility initially rises, as the increase in monetary returns dominates. This holds until an internal maximum for $q^*$ is reached. Subsequently, the curve falls, as the quadratically acting risk penalty dominates. It becomes clear that the investor does not simply hold as many shares as possible. The graph illustrates the fundamental trade-off between return and risk in the model. Although, on the one hand, the expected monetary return increases linearly with the portfolio size, on the other hand, risk limits the utility-maximizing position size. Instead of a marginal solution, an internal optimum at $q^* = 0.75$ emerges for the investor under the assumptions made. This results from the equality between the expected excess return per additional share and the marginal risk penalty and indicates the extent to which the investor wishes to be financially exposed to this company at all. The investor holds a positive and economically relevant position and therefore has a financial interest in the company's policy and in the chosen action a. However, influence does not automatically follow from this economic stake. Rather, it is the prerequisite for influence to be valuable at all.

The second scenario again focuses on maximizing the utility of the certainty equivalent. To this end, after the portfolio decision has been made, we now consider the investor's second direct choice variable: his individual influence $m_j$. The aim is to demonstrate whether the investor can actively translate his preferences into corporate decisions. The focus is on visualizing the first free-rider problem: namely, the individual investor bears the full cost of his influence privately but benefits only to a negligibly small extent from the resulting change in corporate value. The model analysis already shows that in the basic model the investor does not exert any positive individual influence.

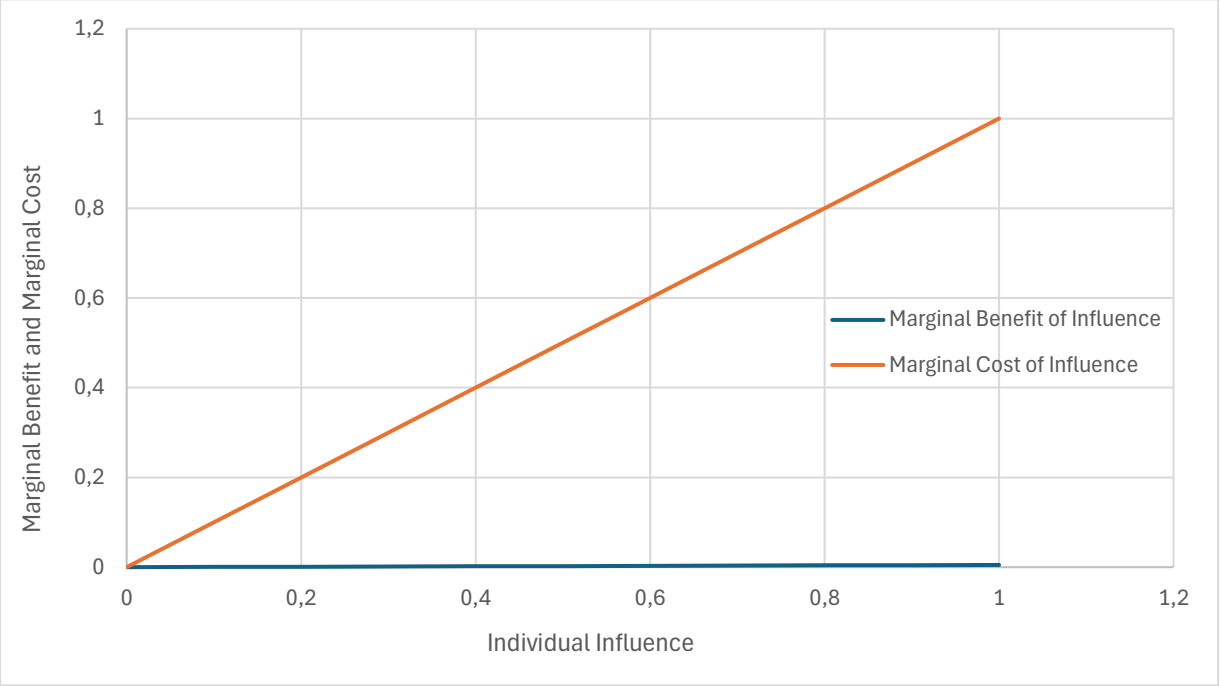


Figure 2. Marginal benefits and marginal costs of individual influence.

The figure illustrates this result graphically. To this end, marginal utility and marginal cost are plotted against individual influence. The investor acts as an atom, so that his individual influence on the aggregate influence and thus on the firm's decision remains negligible. Accordingly, the marginal benefit of additional influence is shown to be virtually zero. This is represented by the blue curve, which runs flat and close to the zero line. For positive influence effort, marginal costs rise linearly with $m_j$, reflecting the quadratic cost term in the certainty equivalent. This is shown by the orange curve. Even with a very small positive influence value, marginal costs exceed marginal benefits. It follows that the origin is the only point at which there is no net negative effect on the benefit derived from influence. The numerical illustration thus confirms that the optimal level of influence for the atomistic investor is therefore at $m_j^* = 0$. The financial stake in a company is not sufficient on its own to generate active influence at the level of many individual investors. The main reason is that individual investors cannot sufficiently internalize the benefits of changing a corporate decision. Although influence could in principle alter the company's course of action, the individual contribution of a single investor is so small that the resulting private benefit is practically negligible. By contrast, the costs of exerting influence

fall entirely and directly on the investor. This creates a structural imbalance that makes individual influence unattractive. This numerical illustration highlights the first free-rider problem and thus demonstrates that an individual investor's ESG preferences are not effectively translated into corporate decisions. At the same time, it becomes clear that effective influence requires a coordination mechanism that pools benefits and costs more effectively.

After the basic model demonstrates that the atomistic investor exerts no individual influence, we now consider the case involving a financial intermediary. The intermediary pools the delegated capital and the corresponding voting rights, first determining the portfolio size and then deciding whether and to what extent to exert influence on the company. The third and fourth scenario examine the decision regarding the optimal intensity of influence $m_i^*$. The intermediary overcomes the original problem of the atomistic investor and makes influence effective. During the model analysis, the optimal intermediary influence is already determined, and it is shown that this consists of three channels: the intermediary's ESG preference, the delegating investor's ESG preference, and the monetary drivers of influence.

The following graphs illustrate how $m_i^*$ changes numerically with the intermediary's preference and the degree of delegation. The baseline assumptions are supplemented below for this purpose. It is assumed that a positive preference difference $A_j - \mu = 1$ exists between the investor and the manager. For the previously assumed $\mu = 0$, $A_j = 1$ therefore applies. Furthermore, a constant monetary influence channel is assumed, for which $\beta q_i = 1$ applies. These two factors are kept constant so that the findings can be specifically focused on the difference in preferences between the intermediary and the manager and the delegation level $\lambda$.

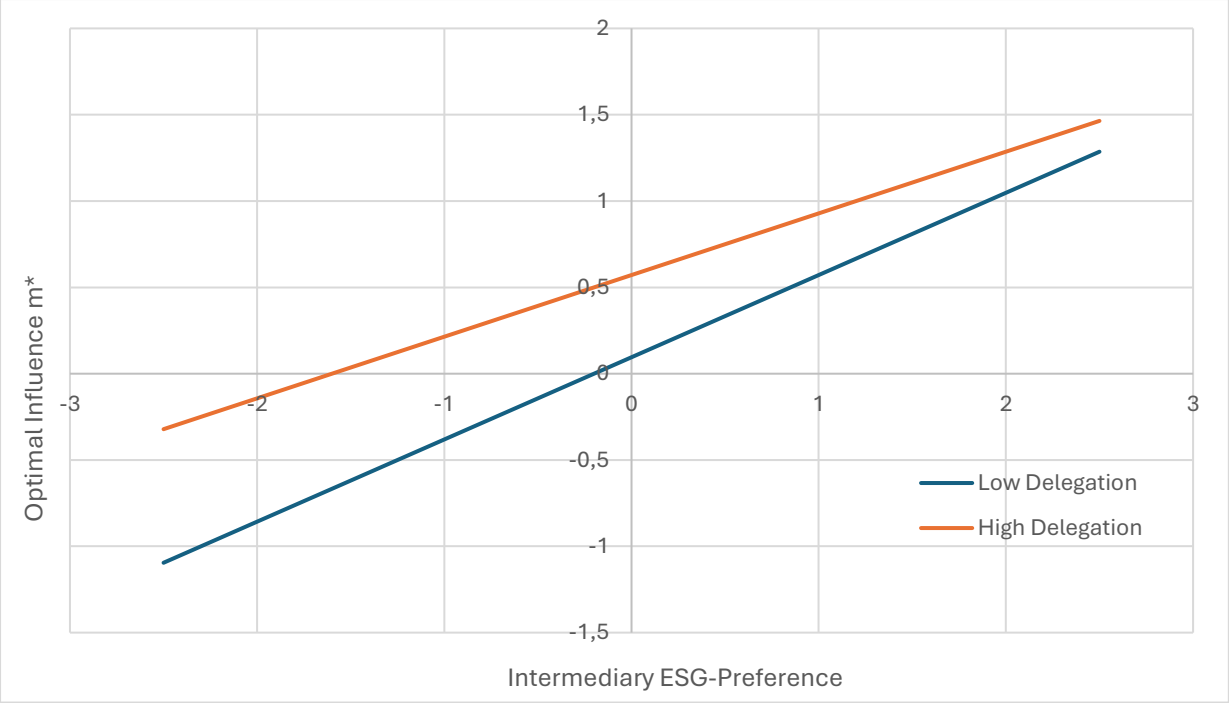


Figure 3. Optimal Intermediary Influence under different levels of delegation.

This third illustration examines how the optimal intermediary influence $m_i^*$ changes as a function of the intermediary's ESG preference Ai when different levels of delegation λ also influence this relationship. For this purpose, $\lambda = 0{,}1$ is assumed for a low level of delegation and $\lambda = 0{,}8$ for a high level of delegation, for comparison. The horizontal axis of the graph plots the intermediary's non-monetary preference. The vertical axis shows the optimal intermediary influence $m_i^*$. The red line represents the case with high delegation, and the blue line represents the case with low delegation. Both curves slope upward, though the curve for high delegation lies above the curve for low delegation. The positive slope illustrates that, ceteris paribus, an intermediary with a stronger ESG preference also exerts greater influence. Furthermore, the intermediary exerts more influence when more investors delegate their capital, as the intermediary then internalizes the investors' interests to a greater extent. Therefore, the curve initially runs above the low-delegation curve at high delegation. However, this red curve has a flatter slope than the blue curve representing lower delegation. The reason for this is that, as delegation increases, the preference component $A_j$ transferred by investors gains relative importance, while the intermediary's own preference loses relative weight and has a weaker impact on influence. Under the parameter constellation shown here, greater delegation increases the level of influence, while it reduces the sensitivity of $m_i^*$ to $A_i$. This results in a crowding-out effect of the intermediary's ESG preference as the level of delegation rises. On the one hand, the numerical illustration demonstrates once again that an intermediary does indeed overcome the free-rider problem at the level of individual investors and that its influence is effective. On the other hand, the optimal influence depends both on the intermediary's own preferences and on the degree of delegation. However, the higher the degree of delegation, the more the intermediary's ESG preferences are weakened by the crowding-out effect. This

dampening effect does not apply to investor preferences, as these, on the contrary, scale with increasing delegation.

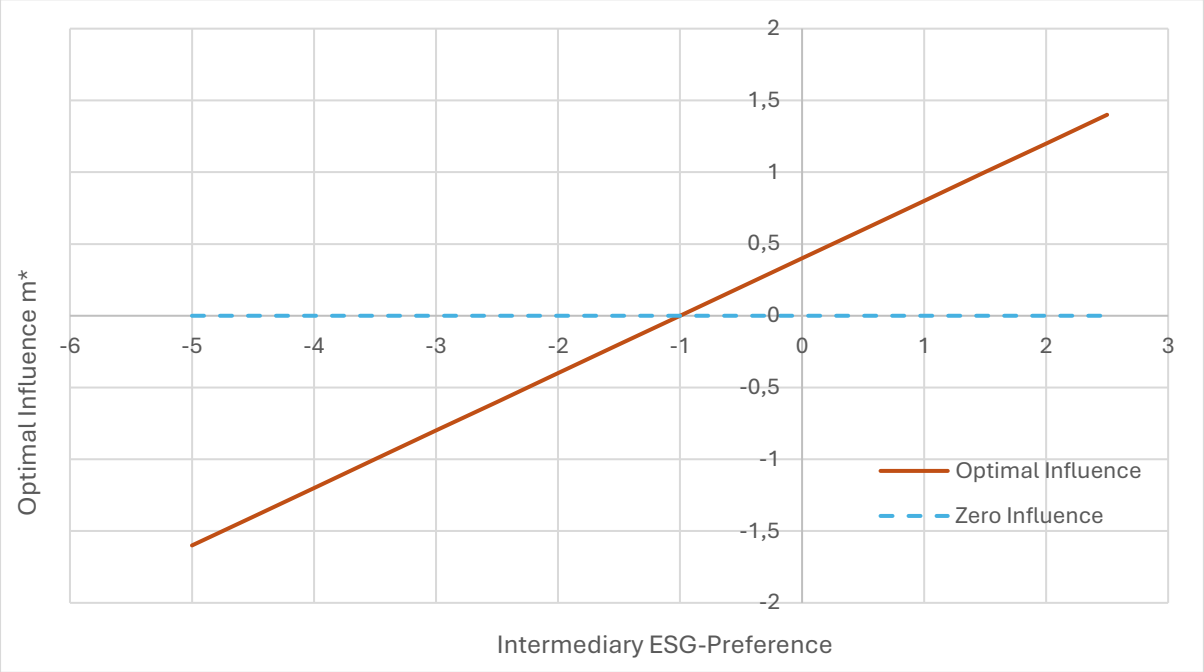


Figure 4. Positive and negative intermediary influence.

The fourth illustration also examines the optimal influence $m_i^*$ as a function of the intermediary's ESG preference. This time, however, the focus is not on the level of delegation, but on the direction of the influence. The goal is to illustrate that $m_i^*$ can be not only positive or zero, but also negative. A medium delegation level of $\lambda = 0{,}5$ is therefore assumed, and a dashed light blue zero line is illustrated for better visibility. The influence function rises linearly and intersects the zero line for a negative preference value. Due to the simplifying assumptions, the threshold value is at $A_i = -1$. The graph illustrates that the direction of the influence depends on how the intermediary's preference compares to that of the manager, that is, on the preference difference $A_i - \mu$. If $A_i$ is significantly below $\mu$, then the intermediary wants a lower corporate action than the manager does and therefore exerts a negative influence. If, however, $A_i$ lies above the threshold, positive influence arises. In particular, $A_i > \mu$ is sufficient for positive influence, but not necessary in this illustration because the investor preference and the monetary channel also shift influence upward. It becomes clear, however, that the intersection point does not lie exactly at $A_i - \mu = 0$, but further to the left. The reason for this is that the intermediary internalizes not only its own preference, but also the preferences of the delegating investors and the monetary channel of influence. According to the assumptions made, these two components shift the optimal influence in a positive direction. Negative influence therefore only arises when the intermediary's preference is significantly lower than that of the manager. The illustration thus makes it clear that an active intermediary with its own preferences can not only amplify the influence but also direct it in the opposite direction if it holds such preferences. The intermediary's optimal influence can therefore also become negative.

Figures 3 and 4 thus show that intermediaries can overcome the fragmented stalemate regarding influence and make it effective. However, they also make it clear that the strength and direction of optimal influence depend, among other things, on intermediary preferences and the level of delegation.

The final numerical illustration no longer considers the single-firm case, but rather the multiple-firm extension from Section 3.2.4, considering the resulting effects of externalities between the assets. In substance, the illustration demonstrates the effects on the intermediary's optimal influence and compares the consequences of a commitment not to hold asset 2 with those of the non-commitment case. For the numerical illustration of the two-firm case, the following assumptions are now made, deviating from the baseline: For the intermediary's preferred action, $A_i = 0{,}9$. The manager's base preference is now defined as $\mu = 0{,}4$. The delegating share of the investors is $\lambda = 0{,}4$. The strength with which the firm's action influences the cash flow of firm 1 is normalized as $ß_1 = 1$. Furthermore, the correlation between the cash flow shocks of both assets is $\rho = 0{,}5$. The risk of both assets is also normalized as follows: $\sigma_1 = \sigma_2 = 1$. The portfolio externality $ß_2$, that is, how strongly the action influences the cash flow of firm 2, remains variable. These assumptions have been deliberately chosen to make the underlying portfolio mechanism as simple, transparent, and visually clear as possible.

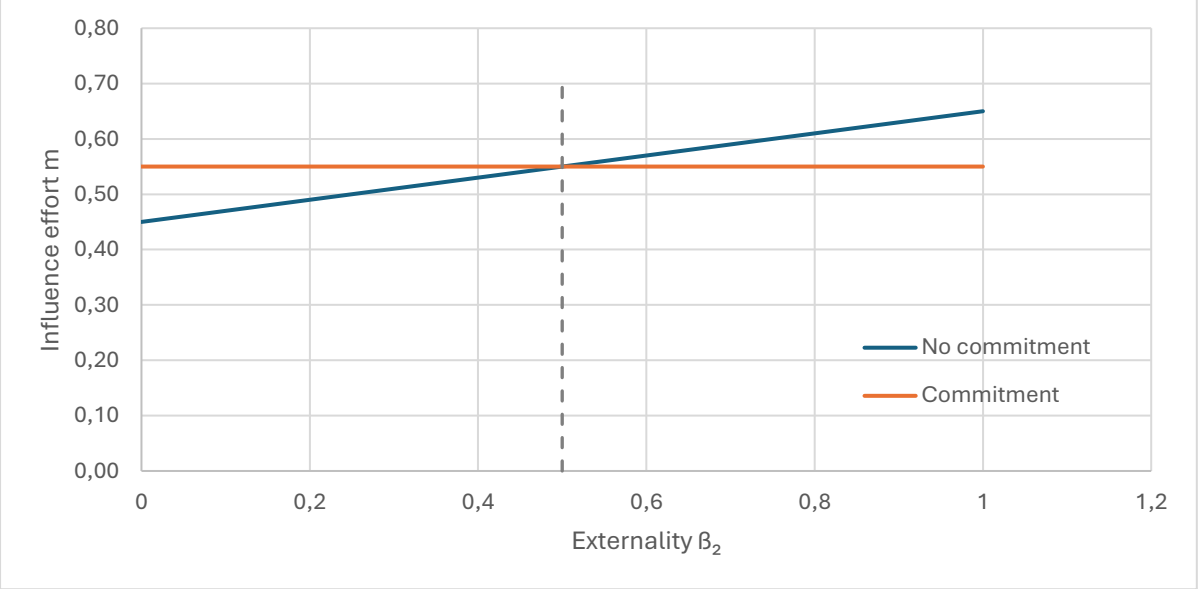


Figure 5. Influence with and without commitment.

Figure 5 visually compares the intermediary's influence effort toward firm 1 in the two cases. In the no-commitment case, the intermediary holds both asset 1 and asset 2 without restriction. This case is represented by the rising blue line. The optimal level of influence thus increases as the externality $ß_2$ increases. In the commitment case, the intermediary commits not to hold asset 2. This is represented by the orange horizontal line. Consequently, the level of influence is no longer dependent on $ß_2$. Both lines intersect at a threshold value $\beta_2^* = \rho ß_1 \frac{\sigma_2}{\sigma_1}$. Under the assumptions made, this threshold value is $\beta_2^* = 0{,}5$. This point is visualized by a grey vertical dashed line. Below this threshold, the commitment line

lies above the no-commitment line: in this range, therefore, forgoing asset 2 increases the intermediary's influence relative to the case without a commitment. For values above this threshold, however, the no-commitment line lies above. Here, the dominant effect is that holding additional shares in company 2 provides the intermediary with a stronger incentive to exert influence, because the corporate action also improves the cash flow of the second asset. The threshold thus precisely separates the ranges in which commitment either increases or decreases influence.

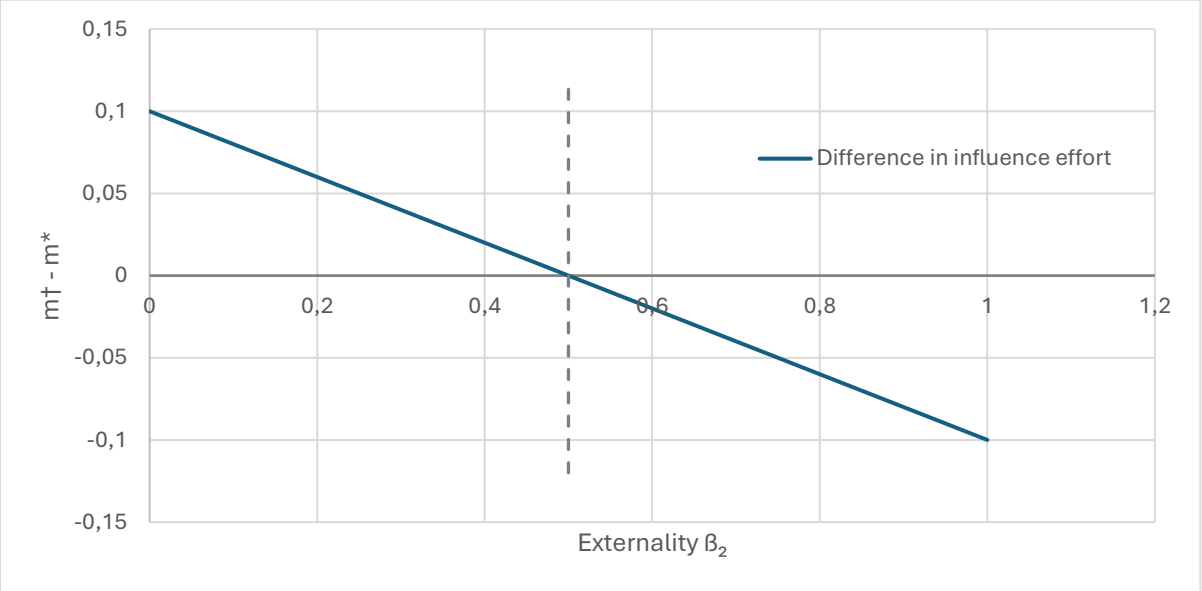


Figure 6. Difference in influence effort.

Figure 6 directly complements this and further illustrates the difference between the level of influence with commitment minus the level of influence without commitment, depending on the externality $ß_2$. This graph thus summarizes the findings of Figure 5 in a single linear relationship: The difference is positive for small values and negative for large values of ß2. The difference is equal to zero exactly at the threshold $ß_2 = 0{,}5$. This is again marked as a gray dashed line. For $ß_2 < \beta_2^*$, $m_i^\dagger - m_i^* > 0$ holds, which means that commitment leads to a higher level of influence than the case of no-commitment. For $ß_2 > \beta_2^*$ and $m_i^\dagger - m_i^* < 0$ holds, so the no-commitment case leads to higher influence. The change in sign at the threshold thus illustrates the mechanism already elaborated in Figure 5. Both graphs thus show the economic channel underlying Proposition 5: For sufficiently large values of the externality, a commitment not to hold asset 2 effectively corresponds to a commitment to exert less influence. In both figures, this corresponds to the region above the threshold. This is precisely what can make delegation more attractive, because delegating investors bear lower influence costs when the intermediary's influence effort is reduced. These illustrations thus visualize the mechanism through which both the portfolio effect and the intermediary's self-commitment jointly influence the subsequent delegation decision.

## 3.4 Practical Implications

Now that the model and its results have been analyzed in detail and illustrated numerically, we will proceed to interpret them in terms of practical implications. The goal is to contextualize the results, identify key implications for investors, companies, and regulators, and thereby translate the theoretical model-based approach into practical relevance. The central question is therefore under which conditions ESG preferences become effective and translate into ESG-relevant corporate decisions.

An analysis of the basic model shows that the existence of ESG preferences among small, individual investors is not sufficient to affect actual corporate decisions. The reason is that the costs of exerting influence are borne individually, while the benefits are spread across all investors. This classic free-rider problem at the level of individual direct investors rationally leads to no individual influence (Friedman & Heinle, 2020). This logic aligns with the theoretical idea that preferences only become relevant when they operate through governance and influence mechanisms (Hart & Zingales, 2017). In practice, this means that existing or even rising ESG preferences among investors cannot guarantee effective ESG pressure on companies. What is far more decisive is whether market and institutional structures provide functioning channels that bundle these preferences and translate them into effective influence over management. The impact of ESG thus depends less on the mere existence of sustainable preferences than on their institutional translation into influence. The focus therefore shifts from the mere demand for greater sustainability to the conditions under which this demand becomes effective in corporate decision-making. This implies that the effectiveness of ESG preferences must be understood as a coordination and transmission problem.

At first glance, this coordination appears to solve the problem in the model, as financial intermediaries can mitigate the original coordination problem faced by small investors and exert effective influence by pooling capital and voting rights. However, since all investors benefit from the corporate decisions resulting from this influence, while only delegating investors bear the associated costs, an additional free-rider problem arises at the delegation level. The coordination problem is thus not fully solved but rather shifted to another level (Friedman & Heinle, 2020). Bebchuk et al. (2017) likewise argue that while intermediaries can aggregate ESG preferences and make them effective through a central channel, they themselves are also subject to incentive and agency conflicts. In addition, Friedman and Heinle (2020) suggest that intermediation is particularly viable when costly influence efforts can be economized, for instance because the intermediary faces lower monitoring and influence costs. For asset managers, this implies that aggregation alone does not guarantee an effective stewardship structure. What is far more relevant is whether the institutional design is structured in such a way that the intermediary possesses the personnel, organizational, and economic capabilities to translate ESG preferences into effective, but costly, influence. For investors, this implies that when evaluating funds, they should look not only for appropriate ESG branding but also for real engagement structures, voting practices, and governance resources. For institutional asset managers, this means that ESG positioning without actually viable delegation and influence mechanisms quickly loses credibility. Intermediation

is therefore not automatically the solution but can become one when effective ESG governance is institutionally supported.

Investors do not endogenously decide to delegate solely based on their ESG preferences. Delegation occurs only when it becomes relatively more attractive than direct investment. In the model, this relative attractiveness is established through a transaction cost of direct participation in the capital market. More generally, Friedman and Heinle (2020) show that delegation requires friction or advantages that make direct investment less attractive. They further indicate that outcome-based ESG preferences alone may be insufficient to attract small investors to sustainable funds once the free-rider problem is considered. Accordingly, the demand for such funds may also depend on investors attaching value to the holding of sustainable assets itself, rather than only to the corporate outcomes associated with them (Friedman & Heinle, 2020). Delegation can become attractive when influence costs are relatively low, expertise is available, economies of scale become significant, or coordination costs decrease. Without such advantages, direct investment remains rational (Friedman & Heinle, 2020). Admati et al. (1994) also emphasize that exercising influence is associated with information, coordination, and monitoring costs and is therefore not free. It follows that delegation must offset this cost disadvantage through other benefits. In practice, this implies that financial intermediaries must offer investors investment products that provide concrete long-term added value compared to direct or passive holding. Such added value can include professional monitoring, better access to management, specialized teams for activism, or economies of scale in the exercise of influence. At the same time, this also implies that lower costs of direct market participation do not necessarily strengthen delegated ESG influence but may even weaken it if they make delegation less attractive. Investors should therefore delegate specifically where real efficiency gains are possible, rather than to funds that address sustainability only symbolically. Delegation thus tends to emerge where it is organizationally and economically viable at the institutional level.

A particularly striking finding of the model, based on Friedman and Heinle (2020), is that ESG preferences do not have a monotonic effect. On the one hand, stronger investor preferences can increase delegation, influence, and the ESG-relevant corporate action; under certain conditions, however, they can also lead to the opposite outcome. The reason for this lies in the counteracting influence costs that may be associated with very strong ESG preferences. More ESG concerns therefore do not automatically lead to stronger ESG-related corporate influence. Costs, delegation levels, and institutional feasibility are decisive. Krueger (2015) also confirms the lack of monotonicity, as the capital market does not react positively to ESG across the board. While negative ESG events clearly reduce value, a company's positive ESG measures do not automatically increase value. The impact depends on the context and institutional conditions. In practice, this means that growing ESG demand among investors in the capital market does not equate to permanently higher real ESG pressure. For a fund's asset manager, this implies that if rising preferences lead only to increasingly intense and costly influence, investors' willingness to delegate is weakened. Asset managers therefore need the ability to

organize ESG stewardship in such a way that they can exercise influence effectively without driving costs ever higher. Investors, for their part, should not only consider the strength of their ESG preferences, but also whether the chosen intermediary can implement them in a structurally efficient manner. A company must therefore be able to assess systematically whether an ESG-oriented investor possesses coordinated influence capabilities or whether the ESG orientation remains largely ineffective. Regulation can support this process by creating framework conditions that make the implementation and verification of sustainable preferences easier.

Regulation is also important because disclosure requirements enhance transparency, comparability, and external discipline (Tirole, 2006). However, the model shows that key frictions do not end at the corporate level but persist at the delegation level. Intermediaries benefit particularly from mechanisms that reduce the effort required to exert influence and make delegation more attractive to investors (Friedman & Heinle, 2020). It is therefore not enough to simply improve ESG disclosures about companies. Instead, the quality of stewardship and influence implementation by funds must also become more transparent. In theory, ESG disclosures serve to reduce information asymmetries and thus create a basis for disciplining market pressure and shareholder activism. In practice, however, investors still find it difficult to assess which funds and intermediaries exercise influence. As a practical implication, reporting requirements could therefore include information on voting transparency, engagement policies, governance resources, and actual stewardship outputs. For asset managers, this increases the pressure to back up ESG promises with real processes and capacities. For investors, on the other hand, it improves the comparability of different investment products. Regulation should therefore not only improve ESG information at the firm level but also make the quality of influence implementation more verifiable.

Beyond regulation, the structure and coordination of ownership are also important (Hart & Zingales, 2017). Institutional investors are significantly better able to translate preferences into actual influence than highly fragmented groups of owners. Intermediaries benefit particularly where they can reduce costly influence, for example because their preferences are already aligned with those of company management. From this perspective, ESG funds may find it particularly attractive to invest in companies whose management is already relatively aligned with their ESG-related objectives (Friedman & Heinle, 2020). Dimson et al. (2015) also substantiate this empirically by showing that activism can have real effects precisely where investors possess actual channels for influence and are, to a significant extent, institutional in nature. Appropriate governance structures are crucial as enablers for translating these preferences into actual corporate decisions (Shleifer & Vishny, 1997). If maximizing shareholder welfare rather than market value is set as the relevant objective, then it is crucial whether owners can enforce their ESG preferences (Hart & Zingales, 2017). In practice, this means that ESG should not be treated merely as a reporting and compliance issue. Instead, companies should also understand how ESG pressure is channeled through their ownership structure. Management should therefore be clear about which investor groups are represented as shareholders, how actively they engage, which issues

pose a potential risk of activism, and how closely aligned management and investors are on these issues. Companies with a high proportion of institutional owners or with investors already strongly aligned around ESG-related objectives are particularly likely to come under scrutiny from investors actively seeking to influence decisions. If there is substantive alignment between management and these investors, engagement may be less confrontational, because the intermediary needs to exert less costly influence to achieve the desired decision. This scenario can also be particularly attractive for sustainable funds. It is therefore important for companies to know not only which ESG issues are relevant, but also which owners can exert effective pressure on these issues.

In the portfolio extension of the model, the intermediary considers not only individual firms but also externalities between portfolio companies. This shows that exclusion criteria are not only relevant for moral or normative reasons but can also have an economic function when they reduce costly and excessive influence incentives. In the case of positive externalities, a fund may benefit from committing not to hold certain assets ex ante, because this can cut off an additional influence channel and lower the costs borne by delegating investors. In the case of negative externalities, diversification can also dampen incentives to exert costly influence and thereby improve the attractiveness of delegation (Friedman & Heinle, 2020). Krueger et al. (2020) already emphasize that ESG risks are often not only relevant to specific companies but frequently affect the entire portfolio. According to the model, portfolio composition additionally becomes part of the optimal ESG strategy by influencing the desirability of delegation. In practice, this means that asset managers must decide where active engagement is worthwhile, where exclusion or divestment can be strategically justified, and where portfolio companies are so closely intertwined that additional influence would be inefficient and costly. Excluding certain companies is thus not only sensible from a moral standpoint but can also serve as a strategic tool to limit influence costs under specific conditions. For diversified investors, this shifts the focus from individual high-profile problem cases to the question of how ESG risks and engagement strategies affect the overall portfolio. Conversely, for companies, this means that not only their own ESG profile is relevant, but also the extent to which they contribute to broader sectoral or portfolio-wide risks and externalities.

## 4. Limitations

The purpose of the following section is to identify the key limitations of this study. Despite its theoretical value and the targeted extension of the initial model, the analysis is based on several simplifying assumptions that must be considered when interpreting the results. The following limitations therefore concern both the theoretical scope of the study and the transferability of the implications derived to real-world ESG contexts. This clarifies the applicability of the analysis and identifies starting points for further research.

Starting with the model-related limitations, the model assumes a high degree of abstraction regarding market and stakeholder structures. It is based on a deliberately stylized framework to analytically isolate

the relationship between individual investors' ESG concerns, delegation, and corporate influence. In particular, the analysis is conducted in a one-firm market setting and relies on simplifying assumptions that facilitate analytical tractability while reducing institutional complexity. Consequently, real capital markets are represented only in a simplified form. Differences between investor groups, funds, and corporate governance structures are acknowledged at the theoretical level but are largely abstracted from in the formal model. Moreover, interactions between multiple market actors are not captured in their full institutional complexity. The results should therefore be interpreted primarily as statements about the modeled theoretical mechanism rather than as direct predictions for the full diversity of real-world market and ownership structures.

Another limitation of the model is that delegation depends on frictions. A central component of the model is that effective delegation to an intermediary does not arise solely from investors' existing ESG preferences but is tied to relative advantages over independent direct investment. In the model, this mechanism is captured through additional market frictions. Direct market participation must therefore be associated with specific costs, disadvantages, or restrictions. Without these additional assumptions, delegation would not arise rationally in the model. The significance of the results is therefore closely tied to the existence and specific form of such frictions. In practical terms, this means that the model's implications are particularly plausible where delegation via a financial intermediary offers coordination, information, or efficiency advantages over direct shareholder influence.

The model also captures ESG concerns in a highly abstracted form through non-monetary preferences, influence costs, and the resulting corporate decision. However, the actual motivations of sustainable investors often extend beyond this framework. Investors may be driven by reputational incentives, regulatory requirements, or self-normative and identity-related motives in their investment strategies. Likewise, the model does not account for the fact that investors may demand sustainable investments independently of the channel through which they influence corporate decisions. Thus, the study explains a specific mechanism through which ESG concerns can be translated into corporate influence, but not the full range of motives behind sustainability-oriented capital allocation.

Furthermore, the model analysis examines the relevant mechanisms in a static setting. Temporal dynamics, repeated interactions between investors, intermediaries, and firms, and longer-term adjustment processes are therefore not modeled separately. As a result, factors such as learning processes among market participants, repeated engagement, changing ESG preferences, and time-delayed effects of influence are not considered. This last point is particularly relevant in the ESG context, as effects often emerge only over extended periods of time. The results of this study should therefore be understood primarily as statements about static incentive and delegation structures and capture long-term ESG dynamics only incompletely.

The addition of a second firm to analyze the portfolio effect significantly increases the realism of the initial model, as it no longer considers decisions exclusively at the firm level but also within a multi-firm context. This makes it possible to model externalities between firms. However, the extension

remains selective and theoretical in nature. Real portfolios comprise a significantly larger number of companies, heterogeneous industry characteristics, different correlation structures, and more complex forms of interaction. Institutional investment constraints, liquidity aspects, and active rebalancing strategies also remain unaccounted for. The portfolio extension thus improves the model's applicability but does not replace comprehensive modeling of real-world portfolio management in an ESG context. Its practical relevance therefore remains conditional on the simplifying assumptions of the model.

In addition to the limitations regarding the model theory, there are also limitations concerning the transferability and interpretation of the results. First, ESG performance is captured only indirectly through the modeled corporate decision framework rather than as an empirically operationalized outcome. The study examines the conditions under which ESG concerns can theoretically be translated into corporate decisions. However, this is not operationalized in the model using real, observable variables such as ESG ratings, emissions data, engagement outcomes, or stewardship outputs. Instead, ESG performance is represented through corporate decisions and their relation to investors' preferences and expected cash flows. The limitation therefore lies not in the absence of ESG performance from the model, but in the fact that it is captured only indirectly through modeled decisions and expected cash-flow effects rather than through observable sustainability outcomes.

Furthermore, the implications for investors, intermediaries, companies, and regulators derived in Section 3.4 address real-world institutional realities that are not explicitly modeled in the theoretical framework. These include voting transparency, engagement guidelines, governance resources, stewardship capacities, the quality of disclosure, and the verifiable exercise of influence. The transition from formal model logic to practical implications is therefore based not only on the equilibrium results of the model itself, but also on their conceptual embedding in real market and governance structures. The practical conclusions should thus be understood as theoretically grounded implications rather than as direct predictions of the formal model. Their transferability depends on the extent to which the conditions assumed in the argumentation exist in practice and is limited by the only partial correspondence between the formal model structure and the practical level of action.

One deliberate limitation is that this study is designed as a theoretical model analysis and does not test the derived mechanisms using real capital market or corporate data. It therefore remains open whether the modeled relationships between delegation, shareholder activism, and ESG-related corporate performance can be observed in practice in a comparable form. The study identifies causal logics and incentive structures based on model-theoretical reasoning but does not validate their empirical scope within the same investigation. This deliberately accepted limitation provides a clear starting point for subsequent empirical research.

In the theoretical section of this thesis, ESG is defined as a three-dimensional construct in which environmental, social, and governance factors differ in their functions, contexts, risk logic, and implementation mechanisms. In the model and the implications derived from it, however, ESG concerns

are treated in a highly aggregated form as non-monetary preferences. Differences in measurability, time horizon, conflict potential, and impact across the individual ESG dimensions are therefore not addressed with the same level of differentiation. For practical purposes, however, these differences are relevant, since concrete ESG questions and implementation strategies often depend precisely on the specific characteristics of the individual dimensions. The results should therefore be interpreted as applying to ESG-related concerns in an aggregated sense, rather than to each ESG dimension in a fully differentiated way. This leaves the empirical scope of the identified mechanisms open and points to the need for subsequent empirical testing.

Another theoretical premise of this study is that ESG impact depends significantly on framework conditions such as disclosure requirements, governance structures, monitoring, enforcement, and regulatory pressure. However, these factors are not incorporated into the model as separate parameters. The study therefore does not formally examine how regulatory requirements and obligations would affect delegation, influence costs, or the influence channel more generally. It consequently remains open how the results would change under different regulatory frameworks and how robust the mechanisms are across institutional settings. Practical applicability is therefore particularly limited where real-world conditions deviate substantially from the assumed model environment.

Taking together, these limitations clarify that the study's contribution lies primarily in the theoretical explanation of ESG-related delegation and influence mechanisms, while their transfer to real-world settings remains conditional.

## 5. Conclusion

This theoretical study examines whether, and under what conditions, shareholders' ESG concerns can be translated into ESG-relevant corporate decisions and thereby potentially improve ESG performance. The analysis begins with the observation that while investors in the capital market do have ESG preferences, their actual impact on corporate decisions is not self-evident. To answer this question, the transmission mechanism is analyzed using a model framework based on Friedman and Heinle (2020). This framework systematically examines the role of investors, their size, free-rider problems, financial intermediaries, delegation, and, by extension, portfolio effects. The study thus addresses the debate over whether sustainability-oriented investors can influence companies or whether ESG concerns remain largely inconsequential without appropriate institutional mechanisms.

The study concludes that the model demonstrates that ESG concerns do not, in and of themselves, lead to improvements in a company's ESG performance. What is far more decisive is whether institutional and economic conditions exist under which dispersed investor preferences can be translated into coordinated and genuinely effective influence on corporate decisions. Without such a coordination mechanism, which is represented in the model through delegation to a financial intermediary, ESG preferences remain ineffective, particularly among small, direct-investing shareholders, due to the free-rider problem. ESG-related corporate decisions can therefore improve only when such preferences are

translated into scalable, incentive-compatible, and organizationally viable influence structures, and not merely because investors hold sustainable preferences.

The first key finding of this study is that the problem does not lie in the existence of ESG preferences, but rather in a lack of coordination regarding their implementation. If investors participate in the market in an atomistic and uncoordinated manner, they may benefit from ESG-related corporate decisions, but they lack sufficient individual incentives to exert influence themselves and bear the associated costs. This reveals a clearly underlying problem: it is not a lack of preferences in the market, but rather a lack of coordination among dispersed investors that prevents ESG preferences from being translated into corresponding corporate action. This underlying problem also recurs throughout the remainder of the analysis. The introduction of delegation to a financial intermediary shows that this mechanism can mitigate the coordination problem among small investors by pooling voting rights, information gathering, and influence. However, the model also demonstrates that delegation does not automatically guarantee an effective translation of ESG preferences into ESG-related corporate decisions. The original free-rider problem does not disappear completely but shifts to the delegation level. Whereas it initially arises among individual investors, it now operates between delegating and direct investors. Effective institutional translation therefore remains conditional on whether delegation through such a coordinated channel is relatively more attractive than direct investment. The model analysis shows that this state does not arise automatically endogenously but depends on frictions or advantages that either benefit the delegating side or make direct investing relatively less attractive.

If such a frictional advantage exists, this leads to another essential and counter-intuitive finding of the study. A stronger degree of ESG concerns among investors does not imply an automatic linear increase in ESG-related corporate action or performance. While stronger preferences can reinforce delegation and the intermediary's influence under certain conditions, they can also produce the opposite effect: higher influence costs may reduce investors' willingness to delegate and ultimately weaken effective influence. ESG impact therefore depends not only on the intensity of preferences, but also on costs, frictions, and institutional feasibility. The expanded multi-firm context brings the model closer to reality, but at the same time makes clear that portfolio externalities can further shape influence incentives. ESG engagement should therefore not be understood in isolation from a single target company. In portfolio decision-making, commitment or exclusion strategies can also become relevant when they reduce excessive influence incentives and make delegation more attractive.

This study uses a theoretical model to clarify the conditions under which shareholder preferences regarding ESG not only exist in the capital market but can also have a meaningful impact on corporate decisions. It demonstrates that an institutional intermediary layer must exist between preference and outcome, and that the effectiveness of this layer is central to improving ESG-related outcomes at the firm level. Thus, the findings contribute to understanding sustainable investing not merely as a preference phenomenon, but as a governance and coordination problem. Concepts from the existing literature, such as sustainable investing, shareholder activism, and financial intermediation, are linked

and modeled through a common mechanism of influence. This reveals that ESG impact does not depend solely on whether an investor prefers ESG criteria, but rather on how ownership rights, opportunities for influence, and delegation incentives are institutionally organized. In practice, this implies that credible ESG impact requires structures, resources, and incentives to exert influence. For investors, intermediaries, companies, and regulators alike, this means that the effectiveness of sustainable capital allocation depends significantly on the design of the framework conditions governing these channels of influence.

However, it is important to note that the model's applicability to real capital markets is limited by its stylized assumptions. ESG performance is not represented by observable ESG data but is derived indirectly from modeled corporate decisions and cash-flow relationships. Future research should therefore empirically test the identified mechanisms and expand them into a dynamic context. The results of this study are thus primarily theoretical statements regarding incentive, delegation, and influence structures.

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# A. Appendix

This appendix provides the mathematical derivations and proofs for the model results presented in Chapter 3. It follows the structure of the main analysis and complements it by showing the formal steps underlying the equilibrium results.

## A.1 Preliminary derivations from the model setup

This section derives the manager's optimal action from the model setup in Section 3.1. Since the remaining elements introduced there are assumptions rather than equilibrium results, no further derivations are required at this stage.

Starting from equation (1), the manager solves the corresponding optimization problem:

$$\max_a u_m = \max_a(-(a - m - \mu)^2).$$

Differentiating with respect to a yields the first-order condition

$$\frac{\partial u_m}{\partial a} = -2(a - m - \mu) = 0,$$

$$a - m - \mu = 0$$

which implies

$$a = m + \mu.$$

Since the objective function is strictly concave in a, this solution is the unique optimum:

$$\frac{\partial^2 u_m}{\partial a^2} = -2 < 0$$

Thus, the manager's optimal action is given by equation (2).

## A.2 Benchmark case without an intermediary

This section derives the benchmark equilibrium in the absence of an intermediary. Using the direct investor's certainty equivalent from equation (3), it first shows that atomistic investors optimally choose no individual influence. It then derives the resulting equilibrium action, the direct investor's optimal share demand, and the benchmark stock price.

Starting from equation (3), the certainty equivalent of direct investor j is given by

$$CE_j = q_j(\beta a - p) - \frac{\gamma}{2}(a - A_j)^2 - \frac{c}{2}m_j^2 - \frac{1}{2}\tau q_j^2\sigma^2.$$

In the benchmark case without an intermediary, aggregate influence is the sum of the individual influence choices of all atomistic investors:

$$m = \int_0^1 m_j dj$$

Using equation (2), the manager's action is therefore

$$a = m + \mu = \mu + \int_0^1 m_j dj.$$

To determine the investor's optimal influence choice, differentiate $CE_j$ with respect to $m_j$. Applying the chain rule yields

$$\frac{\partial CE_j}{\partial m_j} = \left(\frac{\partial CE_j}{\partial a}\right)\left(\frac{\partial a}{\partial m_j}\right) - c\, m_j.$$

Since investor j is atomistic, the effect of an individual change in $m_j$ on aggregate influence is negligible. Hence,

$$\frac{\partial a}{\partial m_j} = \left(\frac{\partial a}{\partial m}\right)\left(\frac{\partial m}{\partial m_j}\right) = 0.$$

The first-order condition therefore simplifies to

$$\frac{\partial CE_j}{\partial m_j} = -cm_j = 0,$$

which implies

$$m_j^* = 0.$$

Because this holds for every atomistic investor, aggregate influence in equilibrium is also zero:

$$m^* = \int_0^1 m_j^* dj = 0.$$

Substituting this result into equation (2) yields the manager's equilibrium action:

$$a^* = m^* + \mu = \mu.$$

The certainty equivalent then simplifies to

$$CE_j = q_j(\beta\mu - p) - \frac{\gamma}{2}(\mu - A_j)^2 - \frac{1}{2}\tau q_j^2 \sigma^2.$$

Since the non-monetary term does not depend on $q_j$, the investor's optimal share demand is obtained by differentiating with respect to $q_j$:

$$\frac{\partial CE_j}{\partial q_j} = \beta\mu - p - \tau q_j \sigma^2 = 0$$

which gives

$$q_j^* = \frac{\beta\mu - p}{\tau\sigma^2}.$$

Market clearing requires aggregate demand to equal the fixed supply of one share:

$$\int_0^1 q_j^* dj = 1$$

Since all atomistic investors face the same monetary trade-off, they choose the same portfolio position in equilibrium. Hence,

$$q_j^* = 1$$

Substituting this into the demand equation yields the benchmark price:

$$1 = \frac{\beta\mu - p}{\tau\sigma^2}$$

$$\beta\mu - p = \tau\sigma^2$$

$$p^b = \beta\mu - \tau\sigma^2.$$

Thus, in the benchmark case, atomistic investors choose no influence, aggregate influence is zero, and the manager implements $a^* = \mu$. The stock price is therefore determined only by expected cash flows and risk and is independent of investors' non-monetary preferences.

## A.3 Model with an intermediary

This section derives the equilibrium in the presence of an intermediary. Starting from the intermediary's utility in equation (4), the optimal influence choice is derived first.

In contrast to the atomistic direct investors considered in Section A.2, the intermediary internalizes the effect of its own influence on the manager's action. Using equation (2), the manager's action is given by

$$a = m_i + \mu.$$

Hence, the intermediary recognizes that

$$\frac{\partial a}{\partial m_i} = 1.$$

Equation (4) defines the intermediary's utility as

$$u_i = \lambda\left[q_i(\beta a - p) - \frac{1}{2}\gamma\left(a - A_j\right)^2 - \frac{1}{2}\tau q_i^{2\sigma^2}\right] - \frac{1}{2}\gamma(a - A_i)^2 - \frac{1}{2}c\, m_i^2$$

Substituting $a = m_i + \mu$ into the utility function yields

$$u_i = \lambda\left[q_i(\beta(m_i + \mu) - p) - \frac{1}{2}\gamma\left(m_i + \mu - A_j\right)^2 - \frac{1}{2}\tau q_i^2\sigma^2\right] - \frac{1}{2}\gamma(m_i + \mu - A_i)^2 - \frac{1}{2}c\, m_i^2.$$

Differentiating with respect to $m_i$ gives the first-order condition

$$\frac{\partial u_i}{\partial m_i} = \lambda\beta q_i - \lambda\gamma\left(m_i + \mu - A_j\right) - \gamma(m_i + \mu - A_i) - c m_i = 0.$$

Rearranging the terms gives

$$\lambda\beta q_i - \lambda\gamma m_i - \lambda\gamma\mu + \lambda\gamma A_j - \gamma m_i - \gamma\mu + \gamma A_i - c\, m_i = 0 \text{ and further}$$

$$\lambda\beta q_i + \lambda\gamma\left(A_j - \mu\right) + \gamma(A_i - \mu) - (\lambda\gamma + \gamma + c)m_i = 0.$$

Collecting the $m_i$-terms on the right-hand side yields

$$(c + (1 + \lambda)\gamma)m_i = \gamma(A_i - \mu) + \lambda\gamma\left(A_j - \mu\right) + \lambda\beta q_i$$

and thus

$$m_i^*(q_i) = \frac{\gamma(A_i - \mu) + \lambda\gamma\left(A_j - \mu\right) + \lambda\beta q_i}{c + (1 + \lambda)\gamma}.$$

This yields equation (5).

Since $\gamma$ enters both the numerator and the denominator of the closed-form expression, two limiting cases are briefly considered to clarify its mathematical effect.

First, let $\gamma \to \infty$. In that case, the preference-related terms dominate the monetary cash-flow term, so that

$$\lim_{\gamma\to\infty} m_i^*(q_i) = \lim_{\gamma\to\infty} \frac{\big(\gamma(A_i - \mu) + \lambda\gamma\big(A_j - \mu\big) + \lambda\beta q_i\big)}{c + (1 + \lambda)\gamma}$$

$$= \lim_{\gamma\to\infty} \frac{\big(\gamma\big[(A_i - \mu) + \lambda\big(A_j - \mu\big)\big] + \lambda\beta q_i\big)}{c + (1 + \lambda)\gamma}$$

$$= \lim_{\gamma\to\infty} \frac{\left(\big((A_i - \mu) + \lambda\big(A_j - \mu\big)\big) + \frac{\lambda\beta q_i}{\gamma}\right)}{\frac{c}{\gamma} + 1 + \lambda}$$

$$= \frac{(A_i - \mu) + \lambda\big(A_j - \mu\big)}{1 + \lambda}.$$

Using $a^* = m_i^* + \mu$, this implies

$$\lim_{\gamma\to\infty} a^* = \mu + \frac{(A_i - \mu) + \lambda\big(A_j - \mu\big)}{1 + \lambda}$$

$$\lim_{\gamma\to\infty} a^* = \frac{A_i + \lambda A_j}{1 + \lambda}$$

Thus, in the limit, the manager's action converges to the weighted average of the intermediary's and delegating investors' preferred actions.

Second, let $\gamma \to 0$. Then all preference-related terms vanish, and equation (5) reduces to

$$\lim_{\gamma\to 0} m_i^*(q_i) = \frac{\lambda\beta q_i}{c}.$$

In this case, optimal influence is determined solely by the cash-flow motive.

Next, the intermediary's optimal share demand is derived.

Since equation (5) already gives the period $t_2$ optimum for $m_i$, the choice of $q_i$ at period $t_1$ can be characterized by differentiating the intermediary's utility with respect to $q_i$, treating $m_i$ as optimally chosen.

Using equation (4), the partial derivative with respect to $q_i$ is

$$\frac{\partial u_i}{\partial q_i} = \lambda(\beta a - p - \tau q_i \sigma^2).$$

Hence, the first-order condition is

$$\beta a - p - \tau q_i \sigma^2 = 0$$

and thus

$$q_i = \frac{\beta a - p}{\tau\sigma^2}.$$

Substituting $a = \mu + m_i^*(q_i)$ gives

$$q_i = \frac{\beta\big(\mu + m_i^*(q_i)\big) - p}{\tau\sigma^2}$$

Using equation (5), this becomes

$$q_i = \frac{\beta\left(\mu + \frac{\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta q_i}{c + (1 + \lambda)\gamma}\right) - p}{\tau\sigma^2}.$$

Multiplying by $\tau\sigma^2$ yields

$$\tau\sigma^2 q_i = \beta\mu + \frac{\beta\left(\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta q_i\right)}{c + (1 + \lambda)\gamma} - p$$

Separating the $q_i$-term from the remaining components gives

$$\tau\sigma^2 q_i = \beta\mu - p + \frac{\beta\left(\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu)\right)}{c + (1 + \lambda)\gamma} + \frac{\beta^2\lambda q_i}{(c + (1 + \lambda)\gamma)}.$$

Collecting the $q_i$-terms on the left-hand side gives

$$\left(\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma}\right) q_i = \beta\mu - p + \frac{\beta\left(\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu)\right)}{c + (1 + \lambda)\gamma}$$

Writing the right-hand side over a common denominator yields

$$\left(\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma}\right) q_i = \frac{\beta\mu(c + (1 + \lambda)\gamma) + \beta\gamma(A_i - \mu) + \beta\lambda\gamma(A_j - \mu)}{c + (1 + \lambda)\gamma} - p$$

$$= \frac{\beta c\mu + \beta\gamma A_i + \beta\lambda\gamma A_j}{c + (1 + \lambda)\gamma} - p.$$

Therefore,

$$q_i^*(p) = \frac{\frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j)}{c + (1 + \lambda)\gamma} - p}{\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma}}.$$

This yields equation (6). For an interior solution, it must hold that

$$\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma} > 0.$$

This condition also follows from the curvature of the intermediary's period $t_1$ problem. Since $a = \mu + m_i^*(q_i)$ and equation (5) implies

$$\frac{\partial a}{\partial q_i} = \frac{\lambda\beta}{c + (1 + \lambda)\gamma},$$

differentiating the first-order condition with respect to $q_i$ gives

$$\frac{\partial^2 u_i}{\partial q_i^2} = \lambda\left(\beta\frac{\partial a}{\partial q_i} - \tau\sigma^2\right)$$

$$= \lambda\left(\beta\frac{\lambda\beta}{c + (1 + \lambda)\gamma} - \tau\sigma^2\right)$$

$$= -\lambda\left(\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma}\right).$$

Hence, an interior maximum requires

$$\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma} > 0.$$

It remains to determine the optimal share demand of direct investors. As in the case of benchmark, direct investors are atomistic and therefore do not exert individual influence. However, in contrast to Section A.2, they now take the intermediary's influence into account through its effect on the manager's action and thus on expected cash flows.

Since direct investors remain atomistic, they optimally choose $m_j^* = 0$, as shown in Section A.2. Their certainty equivalent therefore reduces to

$$CE_j = q_j(E[x] - p) - \frac{1}{2}\gamma(a - A_j)^2 - \frac{1}{2}\tau q_j^2\sigma^2$$

Since the non-monetary term is constant with respect to $q_j$, the optimal demand follows from

$$\frac{\partial CE_j}{\partial q_j} = E[x] - p - \tau q_j\sigma^2 = 0$$

and thus

$$q_j^* = \frac{E[x] - p}{\tau\sigma^2}.$$

This establishes equation (7). Since the intermediary's influence determines the manager's action, expected cash flow is given by

$$E[x] = \beta(\mu + m_i^*).$$

Substituting this into the direct investor's demand gives

$$q_j^* = \frac{\beta(\mu + m_i^*) - p}{\tau\sigma^2}.$$

Using equation (5), this becomes

$$q_j^* = \frac{\left[\beta\left(\mu + \frac{\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta q_i^*}{c + (1 + \lambda)\gamma}\right) - p\right]}{\tau\sigma^2}.$$

Multiplying by $\tau\sigma^2$ yields

$$\tau\sigma^2 q_j^* = \beta\mu - p + \frac{\beta\left(\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu)\right)}{c + (1 + \lambda)\gamma} + \frac{\beta^2\lambda q_i^*}{c + (1 + \lambda)\gamma}.$$

The feedback term depends on the intermediary's optimal demand $q_i^*$, not on the direct investor's own demand $q_j^*$. Therefore, equation (6) can be used to substitute for $q_i^*$. From equation (6),

$$\left(\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1 + \lambda)\gamma}\right)q_i^* = \frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j)}{c + (1 + \lambda)\gamma} - p.$$

Using this condition for the intermediary's optimal demand, the direct investor's demand simplifies to

$$q_j^*(p) = \frac{\left[\frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j)}{c + (1+\lambda)\gamma} - p\right]}{\left[\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1+\lambda)\gamma}\right]}.$$

This is exactly the same expression as the intermediary's optimal demand in equation (6). Hence,

$$q_j^*(p) = q_i^*(p).$$

This yields equation (8).

Hence, direct and delegating investors hold the same portfolio position in equilibrium. To close the equilibrium, market clearing is imposed. Total demand must equal the fixed supply of one share. Hence,

$$1 = \lambda q_i^* + (1-\lambda) q_j^*.$$

Using $q_j^* = q_i^*$, this simplifies to

$$1 = q_i^* = q_j^*.$$

Thus, each investor type holds one unit of the asset in equilibrium. Substituting $q_i^* = 1$ into equation (6) yields

$$1 = \frac{\frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j)}{c + (1+\lambda)\gamma} - p}{\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1+\lambda)\gamma}}.$$

Multiplying by the denominator gives

$$\tau\sigma^2 - \frac{\beta^2\lambda}{c + (1+\lambda)\gamma} = \frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j)}{c + (1+\lambda)\gamma} - p.$$

Solving for the equilibrium price gives

$$p^* = \frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j)}{c + (1+\lambda)\gamma} - \tau\sigma^2 + \frac{\beta^2\lambda}{c + (1+\lambda)\gamma}$$

$$= \frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)}{c + (1+\lambda)\gamma} - \tau\sigma^2$$

This establishes the equilibrium stock price. Next, substituting $q_i^* = 1$ into equation (5) gives the intermediary's equilibrium influence effort

$$m_i^* = \frac{\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta}{c + (1+\lambda)\gamma}.$$

Using equation (2), the manager's equilibrium action is therefore

$$a^* = \mu + m_i^*$$

$$= \mu + \frac{\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta}{c + (1+\lambda)\gamma}$$

$$= \frac{\mu(c + (1+\lambda)\gamma) + \gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta}{c + (1+\lambda)\gamma}$$

$$= \frac{c\mu + \gamma A_i + \lambda\gamma A_j + \lambda\beta}{c + (1 + \lambda)\gamma}.$$

Hence, expected cash flow is given by

$$E[x] = \beta a^*$$

$$= \frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j + \lambda\beta)}{c + (1 + \lambda)\gamma}$$

Substituting this expression into the pricing relation confirms

$$p^* = E[x] - \tau\sigma^2.$$

Thus, the equilibrium with an intermediary is characterized by $q_i^* = q_j^* = 1$, the stock price $p^*$, the intermediary's influence effort $m_i^*$, and the manager's action $a^*$.

The comparative statics underlying Corollary 1 and Corollary 2 follow directly from the equilibrium stock price.

Corollary 1:

For the parameters with unambiguous effects, differentiation yields:

$$\frac{\partial p^*}{\partial \tau} = -\sigma^2 < 0,$$

$$\frac{\partial p^*}{\partial \sigma^2} = -\tau < 0,$$

$$\frac{\partial p^*}{\partial \mu} = \frac{\beta c}{c + (1 + \lambda)\gamma} > 0,$$

$$\frac{\partial p^*}{\partial A_i} = \frac{\beta\gamma}{c + (1 + \lambda)\gamma} > 0,$$

$$\frac{\partial p^*}{\partial A_j} = \frac{\beta\lambda\gamma}{c + (1 + \lambda)\gamma} > 0,$$

$$\frac{\partial p^*}{\partial \beta} = \frac{c\mu + \gamma A_i + \lambda\gamma A_j + 2\beta\lambda}{c + (1 + \lambda)\gamma}.$$

The derivatives with respect to $\tau$, $\sigma^2$, $\mu$, $A_i$, and $A_j$ have the stated signs under the maintained assumptions $\beta > 0$, $\gamma > 0$, $c > 0$, and $\lambda \geq 0$. The derivative with respect to $\beta$ is positive whenever $c\mu + \gamma A_i + \lambda\gamma A_j + 2\beta\lambda > 0$.

Corollary 2:

Differentiating $p^*$ with respect to $\lambda$ gives

$$\frac{\partial p^*}{\partial \lambda} = \frac{\partial\left(\frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)}{c + (1 + \lambda)\gamma}\right)}{\partial \lambda}$$

$$= \frac{\beta\left((\gamma A_j + \beta)(c + (1 + \lambda)\gamma) - \gamma(c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)\right)}{(c + (1 + \lambda)\gamma)^2}$$

$$= \frac{\beta\left(\beta(c + \gamma) + \gamma^2(A_j - A_i) + c\gamma(A_j - \mu)\right)}{(c + (1 + \lambda)\gamma)^2}$$

Hence,

$$\frac{\partial p^*}{\partial \lambda} > 0 \Leftrightarrow \beta(c + \gamma) + \gamma^2(A_j - A_i) + c\gamma(A_j - \mu) > 0$$

Rearranging with respect to $A_j$ yields

$$A_j > \frac{\gamma A_i + c\mu}{\gamma + c} - \frac{\beta}{\gamma}.$$

Differentiating $p^*$ with respect to $c$ gives

$$\frac{\partial p^*}{\partial c} = \frac{\partial\left(\frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)}{c + (1 + \lambda)\gamma}\right)}{\partial c}$$

$$= \frac{\beta\left(\mu(c + (1 + \lambda)\gamma) - (c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)\right)}{(c + (1 + \lambda)\gamma)^2}$$

$$= -\frac{\beta\left(\beta\lambda + \gamma(A_i - \mu) + \lambda\gamma(A_j - \mu)\right)}{(c + (1 + \lambda)\gamma)^2}$$

Hence,

$$\frac{\partial p^*}{\partial c} > 0 \Leftrightarrow \beta\lambda + \gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) < 0$$

$$\frac{\partial p^*}{\partial c} > 0 \Leftrightarrow \frac{A_i + \lambda A_j}{1 + \lambda} < \mu - \frac{\beta\lambda}{\gamma(1 + \lambda)}.$$

This threshold is slightly stronger than the intuition used in the main text. There, the simpler condition $\frac{A_i + \lambda A_j}{1 + \lambda} < \mu$ is used to characterize negative equilibrium influence. By contrast, the exact comparative-static condition for $\frac{\partial p^*}{\partial c} > 0$ additionally includes the cash-flow term $\beta\lambda$.

Differentiating $p^*$ with respect to $\gamma$ gives

$$\frac{\partial p^*}{\partial \gamma} = \frac{\partial\left(\frac{\beta(c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)}{c + (1 + \lambda)\gamma}\right)}{\partial \gamma}$$

$$= \frac{\beta\left((A_i + \lambda A_j)(c + (1 + \lambda)\gamma) - (1 + \lambda)(c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda)\right)}{(c + (1 + \lambda)\gamma)^2}$$

$$= \frac{\beta\left(c(A_i - \mu) + c\lambda(A_j - \mu) - \beta\lambda(1 + \lambda)\right)}{(c + (1 + \lambda)\gamma)^2}$$

Hence,

$$\frac{\partial p^*}{\partial \gamma} > 0 \Leftrightarrow c(A_i - \mu) + c\lambda(A_j - \mu) - \beta\lambda(1 + \lambda) > 0$$

and equivalently

$$\frac{A_i + \lambda A_j}{1 + \lambda} - \mu > \frac{\beta\lambda}{c}.$$

The appendix now turns to the equilibrium certainty equivalents of delegating and direct investors.

Delegating investors must compensate the intermediary for its influence effort. Their equilibrium certainty equivalent is therefore given by the intermediary's aggregate utility divided across the mass $\lambda$ of delegating investors:

$$CE_i^* = \frac{u_i}{\lambda}$$

Using equation (4),

$$u_i = \lambda CE_j - \frac{1}{2}\gamma(a - A_i)^2 - \frac{1}{2}cm_i^2$$

and therefore

$$CE_i^* = CE_j - \frac{\gamma}{(2\lambda)}(a - A_i)^2 - \frac{c}{(2\lambda)}m_i^2.$$

Here, $CE_j$ denotes the certainty equivalent of a delegating investor inside the intermediary's problem. At the trading optimum, $q_i^* = 1$ and $p^* = \beta a^* - \tau\sigma^2$. Hence, the delegating investor's certainty equivalent inside the intermediary's problem becomes

$$CE_j = q_i(\beta a - p) - \frac{1}{2}\gamma(a - A_j)^2 - \frac{1}{2}\tau q_i^2\sigma^2$$

Substituting the equilibrium values yields

$$\begin{aligned} CE_j &= 1 \cdot \left(\beta a^* - (\beta a^* - \tau\sigma^2)\right) - \frac{1}{2}\gamma(a^* - A_j)^2 - \frac{1}{2}\tau\sigma^2 \\ &= \tau\sigma^2 - \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\gamma(a^* - A_j)^2 \\ &= \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\gamma(a^* - A_j)^2. \end{aligned}$$

Substituting this into the previous expression yields

$$CE_i^* = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\gamma(a^* - A_j)^2 - \frac{\gamma}{2\lambda}(a^* - A_i)^2 - \frac{c}{2\lambda}(m_i^*)^2.$$

Equivalently,

$$CE_i^* = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\left[\gamma(a^* - A_j)^2 + \frac{\gamma}{\lambda}(a^* - A_i)^2 + \frac{c}{\lambda}(m_i^*)^2\right].$$

Using $a^* = \mu + m_i^*$, we obtain

$$a^* - A_j = (\mu - A_j) + m_i^*$$

and

$$a^* - A_i = (\mu - A_i) + m_i^*.$$

Substituting equation (5),

$$m_i^* = \frac{\gamma(A_i - \mu) + \lambda\gamma(A_j - \mu) + \lambda\beta}{c + \gamma + \lambda\gamma}$$

Implies

$$a^* - A_j = \frac{\left(\beta\lambda + c(\mu - A_j) + \gamma(A_i - A_j)\right)}{(c + \gamma + \lambda\gamma)}$$

and

$$a^* - A_i = \frac{\left(\beta\lambda + \lambda\gamma(A_j - A_i) + c(\mu - A_i)\right)}{(c + \gamma + \lambda\gamma)}.$$

Substituting these expressions into $CE_i^*$ and collecting terms yields equation (9):

$$CE_i^* = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\frac{\left(\beta^2\lambda^2 + \lambda\gamma c(\mu - A_j)^2 + \lambda\gamma^2(A_i - A_j)^2 + c\gamma(\mu - A_i)^2\right)}{\lambda(c + \gamma + \lambda\gamma)}.$$

Direct investors do not pay management fees and do not bear influence costs. Since $m_j^* = 0$, their equilibrium certainty equivalent follows directly from equation (3):

$$CE_j^* = q_j(\beta a - p) - \frac{1}{2}\gamma(a - A_j)^2 - \frac{1}{2}\tau q_j^2\sigma^2$$

Using $q_j^* = 1$ and $p^* = \beta a^* - \tau\sigma^2$, this simplifies to

$$CE_j^* = 1 \cdot \left(\beta a^* - (\beta a^* - \tau\sigma^2)\right) - \frac{1}{2}\gamma(a^* - A_j)^2 - \frac{1}{2}\tau\sigma^2$$

$$= \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\gamma(a^* - A_j)^2$$

From the equilibrium action,

$$a^* - A_j = \frac{\beta\lambda + c(\mu - A_j) + \gamma(A_i - A_j)}{c + \gamma + \lambda\gamma}$$

so that equation (10) is obtained

$$CE_j^* = \frac{1}{2}\tau\sigma^2 - \frac{\gamma}{2}\frac{\left(\beta\lambda + c(\mu - A_j) + \gamma(A_i - A_j)\right)^2}{(c + \gamma + \lambda\gamma)^2}.$$

The following special cases are useful to characterize the implications of the equilibrium certainty equivalents derived above.

First, consider the case without non-monetary preferences, i.e. $\gamma = 0$. From equation (10), the certainty equivalent of direct investors reduces to

$$CE_{j_{\gamma=0}^{*|}} = \frac{1}{2}\tau\sigma^2$$

since the second term vanishes when $\gamma = 0$.

Using equation (9), the certainty equivalent of delegating investors becomes

$$CE_{i_{\gamma=0}^{*|}} = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\left(\frac{\beta^2\lambda^2}{\lambda c}\right)$$

and therefore

$$CE_{i_{\gamma=0}^{*|}} = \frac{1}{2}\tau\sigma^2 - \frac{\beta^2\lambda}{2c}$$

Thus, even when non-monetary preferences are absent, delegating investors continue to bear the equilibrium costs of influence.

Next, consider the case in which the intermediary, delegating investors, and managers have identical preferences, i.e.

$$A_i = A_j = \mu$$

Substituting this restriction into equation (9) yields

$$CE_i^* = \frac{1}{2}\tau\sigma^2 - \frac{1}{2}\left(\frac{\beta^2\lambda^2}{\lambda(c + \gamma + \lambda\gamma)}\right)$$

which simplifies to

$$CE_i^* = \frac{1}{2}\tau\sigma^2 - \frac{\beta^2\lambda}{2(c + \gamma + \lambda\gamma)}$$

Differentiating with respect to γ gives

$$\frac{\partial CE_i^*}{\partial\gamma} = \frac{\beta^2\lambda(1 + \lambda)}{2(c + \gamma + \lambda\gamma)^2}$$

and hence

$$\frac{\partial CE_i^*}{\partial\gamma} > 0$$

under this restriction.

This yields the special case used in Corollary 3.

From the earlier decomposition,

$$CE_i^* = CE_j^* - \frac{\gamma}{2\lambda}(a^* - A_i)^2 - \frac{c}{2\lambda}(m_i^*)^2$$

it follows immediately that

$$CE_j^* - CE_i^* = \frac{\gamma}{2\lambda}(a^* - A_i)^2 + \frac{c}{2\lambda}(m_i^*)^2 >= 0$$

and therefore

$$CE_i^* \leq CE_j^*$$

This establishes Proposition 2.

## A.4 Endogenous delegation

Direct investors bear net transaction costs κ when participating in the market directly. The equilibrium degree of delegation is determined by the indifference condition

$$CE_j^* - \kappa = CE_i^*$$

Using the comparison of certainty equivalents from Section A.3,

$$CE_i^* = CE_j^* - \frac{\gamma}{2\lambda}(a^* - A_i)^2 - \frac{c}{2\lambda}(m_i^*)^2$$

it follows that

$$\kappa = \frac{\gamma}{2\lambda}(a^* - A_i)^2 + \frac{c}{2\lambda}(m_i^*)^2$$

or equivalently,

$$\kappa = \frac{1}{2\lambda}[\gamma(a^* - A_i)^2 + c(m_i^*)^2].$$

This yields equation (11).

For the subsequent substitutions, define

$$D := c + \gamma + \lambda\gamma$$

Using Proposition 1,

$$a^* = \frac{c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda}{D}$$

and

$$m_i^* = \frac{\beta\lambda + \gamma(A_i - \mu) + \lambda\gamma(A_j - \mu)}{D}$$

Hence,

$$a^* - A_i = \frac{c(\mu - A_i) + \lambda\gamma(A_j - A_i) + \beta\lambda}{D}.$$

To keep the algebra compact, define

$$N_a := c(\mu - A_i) + \lambda\gamma(A_j - A_i) + \beta\lambda$$

and

$$N_m := \beta\lambda + \gamma(A_i - \mu) + \lambda\gamma(A_j - \mu)$$

so that

$$a^* - A_i = \frac{N_a}{D}$$

and

$$m_i^* = \frac{N_m}{D}.$$

These expressions are substituted into equation (11) in the next step.

Substituting $a^* - A_i = \frac{N_a}{D}$ and $m_i^* = \frac{N_m}{D}$ into equation (11) gives

$$\kappa = \frac{1}{2\lambda}\left[\gamma\left(\frac{N_a}{D}\right)^2 + c\left(\frac{N_m}{D}\right)^2\right].$$

Multiplying by $2\lambda D^2$ yields

$$2\kappa\lambda D^2 = \gamma N_a^2 + c N_m^2$$

Substituting the definitions of $N_a$, $N_m$, and D and rearranging gives the implicit equilibrium condition

$$G_{1(\lambda)} = (2\kappa\gamma^2)\lambda^3 + \left(4\kappa\gamma(c + \gamma) - \gamma\left(\beta + \gamma A_j - \gamma A_i\right)^2 - c\left(\beta - \gamma\left(\mu - A_j\right)\right)^2\right)\lambda^2$$
$$+ 2\left(\kappa(c + \gamma)^2 - c\gamma^{2(\mu - A_i)^2}\right)\lambda - c\gamma(\mu - A_i)^{2(c+\gamma)} = 0$$

Here, $G_1(\lambda)$ is simply the cubic polynomial obtained after collecting all terms in λ. This is the implicit equilibrium condition for the delegation share.

Differentiating implicitly with respect to κ yields

$$\frac{d\lambda}{d\kappa} = -\frac{\frac{\partial G_1}{\partial \kappa}}{\frac{\partial G_1}{\partial \lambda}}$$

with

$$\frac{\partial G_1}{\partial \kappa} = 2\gamma^2\lambda^3 + 4\gamma(c + \gamma)\lambda^2 + 2(c + \gamma)^2\lambda > 0 \quad \text{for} \quad \lambda > 0$$

and

$$\frac{\partial G_1}{\partial \lambda} = 6\kappa\gamma^2\lambda^2 + 2\left(4\kappa\gamma(c + \gamma) - \gamma\left(\beta + \gamma A_j - \gamma A_i\right)^2 - c\left(\beta - \gamma\left(\mu - A_j\right)\right)^2\right)\lambda$$
$$+ 2(\kappa(c + \gamma)^2 - c\gamma^2(\mu - A_i)^2)$$

Restrict attention to equilibria with

$$\frac{\partial G_1}{\partial \lambda} < 0$$

Then

$$\frac{d\lambda}{d\kappa} > 0$$

Next, differentiating implicitly with respect to $A_j$ gives

$$\frac{d\lambda}{dA_j} = -\frac{\frac{\partial G_1}{\partial A_j}}{\frac{\partial G_1}{\partial \lambda}}$$

where

$$\frac{\partial G_1}{\partial A_j} = -2\lambda^2\gamma\left(c\beta + \beta\gamma + c\gamma\left(A_j - \mu\right) + \gamma^2\left(A_j - A_i\right)\right)$$

Since $\frac{\partial G_1}{\partial \lambda} < 0$, the sign of $\frac{d\lambda}{dA_j}$ is determined by the sign of $\frac{\partial G_1}{\partial A_j}$.

Now,

$$\frac{\partial G_1}{\partial A_j} > 0$$

only if

$$A_j < \frac{c\gamma\mu + \gamma^2 A_i - c\beta - \beta\gamma}{\gamma(c + \gamma)}$$

Hence,

$$\frac{d\lambda}{dA_j} > 0$$

for

$$A_j < \frac{c\gamma\mu + \gamma^2 A_i - c\beta - \beta\gamma}{\gamma(c + \gamma)}$$

and

$$\frac{d\lambda}{dA_j} < 0$$

for larger values of $A_j$.

This establishes Proposition 3.

Using Proposition 1,

$$a^* = \frac{c\mu + \gamma A_i + \lambda\gamma A_j + \beta\lambda}{D}$$

with

$$D = c + \gamma + \lambda\gamma.$$

Differentiating with respect to $A_j$ and using the quotient rule together with the chain rule yields

$$\frac{da^*}{dA_j} = \frac{\lambda\gamma}{D} + \frac{\beta(c + \gamma) + \gamma\left(c(A_j - \mu) + \gamma(A_j - A_i)\right)}{D^2} \cdot \frac{d\lambda}{dA_j}$$

The first term,

$$\frac{\lambda\gamma}{D}$$

is strictly positive for $\lambda > 0$, $\gamma > 0$, and $D > 0$. It captures the direct effect of a higher investor preference parameter $A_j$ on the manager's equilibrium action $a^*$, holding the delegation share $\lambda$ fixed. The second term captures the indirect effect that arises because $A_j$ also changes the endogenous equilibrium delegation share $\lambda$. From the implicit equilibrium condition $G_1(\lambda) = 0$,

$$\frac{d\lambda}{dA_j} = -\frac{\frac{\partial G_1}{\partial A_j}}{\frac{\partial G_1}{\partial \lambda}}.$$

Using the derivative derived above,

$$\frac{\partial G_1}{\partial A_j} = -2\lambda^2\gamma\left[\beta(c + \gamma) + \gamma\left(c(A_j - \mu) + \gamma(A_j - A_i)\right)\right],$$

it follows that

$$\frac{d\lambda}{dA_j} = \frac{2\lambda^2\gamma\left[\beta(c + \gamma) + \gamma\left(c(A_j - \mu) + \gamma(A_j - A_i)\right)\right]}{\frac{\partial G_1}{\partial \lambda}}.$$

Substituting this expression into the derivative of $a^*$ gives

$$\frac{da^*}{dA_j} = \frac{\lambda\gamma}{D} + \frac{2\lambda^2\gamma\left[\beta(c+\gamma) + \gamma\left(c(A_j - \mu) + \gamma(A_j - A_i)\right)\right]^2}{\frac{D^2\,\partial G_1}{\partial\lambda}}.$$

For the reasonable equilibrium considered above, $\frac{\partial G_1}{\partial\lambda} < 0$. Hence, the second term is non-positive, while the first term is strictly positive. The effect of $A_j$ on $a^*$ is therefore determined by two opposing channels. The direct preference channel increases $a^*$, whereas the indirect delegation channel can decrease $a^*$ through the endogenous adjustment of the equilibrium delegation share. The overall sign of $\frac{da^*}{dA_j}$ is therefore ambiguous and depends on which channel dominates. This establishes Proposition 4.

## A.5 Multiple firms and portfolio effects

This section characterizes the equilibrium without commitment.

For direct investors, cash flows in the two-firm case are given by

$$x_1 = \beta_1 a_1 + \varepsilon_1$$

and

$$x_2 = \beta_2 a_1 + \varepsilon_2.$$

The direct investor holds $q_{j1}$ shares in firm 1 and $q_{j2}$ shares in firm 2. Hence, expected portfolio payoffs net of prices are

$$q_{j1}(\beta_1 a_1 - p_1) + q_{j2}(\beta_2 a_1 - p_2).$$

The risk term of the two-asset portfolio is

$$q_{j1}^2\sigma_1^2 + q_{j2}^2\sigma_2^2 + 2\rho q_{j1}q_{j2}\sigma_1\sigma_2,$$

where the last term reflects the covariance between both shocks. Substituting the expected payoff and the portfolio variance into the CARA-normal certainty equivalent yields

$$CE_j = q_{j1}(\beta_1 a_1 - p_1) + q_{j2}(\beta_2 a_1 - p_2) - \frac{1}{2}\tau\left(q_{j1}^2\sigma_1^2 + q_{j2}^2\sigma_2^2 + 2\rho q_{j1}q_{j2}\sigma_1\sigma_2\right).$$

This establishes equation (12).

Using equation (12), the intermediary's utility is therefore given by

$$u_i = \lambda CE_j - \frac{1}{2}\gamma(a_1 - A_i)^2 - \frac{1}{2}c\,m_i^2.$$

This establishes equation (13). For the intermediary's portfolio choice, this can be written as

$$u_i = \lambda\left[q_{i1}(\beta_1 a_1 - p_1) + q_{i2}(\beta_2 a_1 - p_2) - \frac{1}{2}\tau\left(q_{i1}^2\sigma_1^2 + q_{i2}^2\sigma_2^2 + 2\rho\, q_{i1}q_{i2}\sigma_1\sigma_2\right)\right] - \frac{1}{2}\gamma(a_1 - A_i)^2 - \frac{1}{2}c\,m_i^2.$$

The direct investor chooses $q_{j1}$ and $q_{j2}$ to maximize equation (12). The first-order conditions are

$$\frac{\partial CE_j}{\partial q_{j1}} = (\beta_1 a_1 - p_1) - \tau\left(q_{j1}\sigma_1^2 + \rho q_{j2}\sigma_1\sigma_2\right) = 0$$

and

$$\frac{\partial CE_j}{\partial q_{j2}} = (\beta_2 a_1 - p_2) - \tau\left(q_{j2}\sigma_2^2 + \rho q_{j1}\sigma_1\sigma_2\right) = 0.$$

Rearranging gives

$$\beta_1 a_1 - p_1 = \tau\left(q_{j1}\sigma_1^2 + \rho q_{j2}\sigma_1\sigma_2\right)$$

and

$$\beta_2 a_1 - p_2 = \tau\left(q_{j2}\sigma_2^2 + \rho q_{j1}\sigma_1\sigma_2\right).$$

The intermediary chooses $q_{i1}$, $q_{i2}$, and $m_i$ to maximize equation (13). The first-order conditions with respect to the portfolio holdings are

$$\frac{\partial u_i}{\partial q_{i1}} = \lambda[(\beta_1 a_1 - p_1) - \tau(q_{i1}\sigma_1^2 + \rho q_{i2}\sigma_1\sigma_2)] = 0$$

and

$$\frac{\partial u_i}{\partial q_{i2}} = \lambda[(\beta_2 a_1 - p_2) - \tau(q_{i2}\sigma_2^2 + \rho q_{i1}\sigma_1\sigma_2)] = 0.$$

For $\lambda \in [0,1]$, these conditions reduce to

$$\beta_1 a_1 - p_1 - \tau(q_{i1}\sigma_1^2 + \rho q_{i2}\sigma_1\sigma_2) = 0$$

and

$$\beta_2 a_1 - p_2 - \tau(q_{i2}\sigma_2^2 + \rho q_{i1}\sigma_1\sigma_2) = 0.$$

Thus, the direct investor and the intermediary solve the same portfolio problem. It follows that

$$q_{i1}^* = q_{j1}^*$$

and

$$q_{i2}^* = q_{j2}^*.$$

Differentiating equation (13) with respect to the intermediary`s optimal influence $m_i$ and using

$$a_1 = \mu_1 + m_i$$

yields

$$\frac{\partial u_i}{\partial m_i} = \lambda(q_{i1}\beta_1 + q_{i2}\beta_2) - \gamma(a_1 - A_i) - cm_i = 0.$$

Substituting $a_1 = \mu_1 + m_i$ yields

$$\lambda(q_{i1}\beta_1 + q_{i2}\beta_2) - \gamma(\mu_1 + m_i - A_i) - cm_i = 0.$$

Rearranging gives

$$(c + \gamma)m_i = \gamma(A_i - \mu_1) + \lambda(q_{i1}\beta_1 + q_{i2}\beta_2),$$

so that optimal influence is

$$m_i^*(q_{i1}, q_{i2}) = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda(q_{i1}\beta_1 + q_{i2}\beta_2)}{c + \gamma}.$$

Using

$$a_1 = \mu_1 + m_i,$$

the manager's equilibrium action is

$$a_1^*(m_i^*) = \mu_1 + m_i^*.$$

Because delegating and direct investors hold the same portfolio in equilibrium, market clearing in both assets implies

$$\lambda q_{i1}^* + (1 - \lambda) q_{j1}^* = 1$$

and

$$\lambda q_{i2}^* + (1 - \lambda) q_{j2}^* = 1.$$

Using

$$q_{i1}^* = q_{j1}^*$$

and

$$q_{i2}^* = q_{j2}^*,$$

it follows that

$$q_{i1}^* = q_{j1}^* = 1$$

and

$$q_{i2}^* = q_{j2}^* = 1.$$

Substituting these equilibrium holdings into the first-order conditions of direct investors yields

$$\beta_1 a_1^* - p_1 = \tau(\sigma_1^2 + \rho\sigma_1\sigma_2)$$

and

$$\beta_2 a_1^* - p_2 = \tau(\sigma_2^2 + \rho\sigma_1\sigma_2).$$

Therefore, equilibrium prices are

$$p_1 = \beta_1 a_1^* - \tau(\sigma_1^2 + \rho\sigma_1\sigma_2)$$

and

$$p_2 = \beta_2 a_1^* - \tau(\sigma_2^2 + \rho\sigma_1\sigma_2).$$

More compactly,

$$p_f = \beta_f a_1^* - \tau\left(\sigma_f^2 + \rho\sigma_1\sigma_2\right), \quad f \in \{1,2\}.$$

This establishes the equilibrium price equation.

Finally, substituting the equilibrium holdings

$$q_{i1}^* = 1$$

and

$$q_{i2}^* = 1$$

into optimal influence gives

$$m_i^* = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda}{c + \gamma}(\beta_1 + \beta_2).$$

Hence, equilibrium action is

$$a_1^* = \mu_1 + \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda}{c + \gamma}(\beta_1 + \beta_2).$$

This completes the derivation of the equilibrium without commitment.

Next, suppose the intermediary commits not to invest in asset 2. Hence,

$$q_{i2}^{\dagger} = 0.$$

Direct investors continue to choose $q_{j1}$ and $q_{j2}$ to maximize equation (12). Their first-order conditions are therefore

$$\frac{\partial CE_j}{\partial q_{j1}} = (\beta_1 a_1 - p_1) - \tau\left(q_{j1}\sigma_1^2 + \rho q_{j2}\sigma_1\sigma_2\right) = 0$$

and

$$\frac{\partial CE_j}{\partial q_{j2}} = (\beta_2 a_1 - p_2) - \tau\left(q_{j2}\sigma_2^2 + \rho q_{j1}\sigma_1\sigma_2\right) = 0.$$

Under commitment, the intermediary chooses only $q_{i1}$ and $m_i$, while $q_{i2}^{\dagger} = 0$ is imposed. Its utility is therefore

$$u_i^{\dagger} = \lambda\left[q_{i1}(\beta_1 a_1 - p_1) - \frac{1}{2}\tau q_{i1}^2\sigma_1^2\right] - \frac{1}{2}\gamma(a_1 - A_i)^2 - \frac{1}{2}c\, m_i^2.$$

The first-order condition with respect to $q_{i1}$ is

$$\frac{\partial u_i^{\dagger}}{\partial q_{i1}} = \lambda[(\beta_1 a_1 - p_1) - \tau q_{i1}\sigma_1^2] = 0.$$

For $\lambda \in [0,1]$, this reduces to

$$\beta_1 a_1 - p_1 = \tau q_{i1}\sigma_1^2.$$

This is the intermediary's demand condition in the commitment case.

Market clearing in the two assets implies

$$\lambda q_{i1}^{\dagger} + (1 - \lambda)q_{j1}^{\dagger} = 1$$

and

$$\lambda q_{i2}^{\dagger} + (1 - \lambda)q_{j2}^{\dagger} = 1.$$

Since $q_{i2}^{\dagger} = 0$, the second market-clearing condition immediately gives

$$(1 - \lambda)q_{j2}^{\dagger} = 1,$$

so that

$$q_{j2}^{\dagger} = \frac{1}{1 - \lambda}.$$

This establishes equation (16).

Substituting (16) into the first-order condition of direct investors for asset 1 yields

$$\beta_1 a_1 - p_1 = \tau\left(q_{j1}^{\dagger}\sigma_1^2 + \rho\left(\frac{1}{1-\lambda}\right)\sigma_1\sigma_2\right).$$

Using the intermediary's condition

$$\beta_1 a_1 - p_1 = \tau q_{i1}^{\dagger}\sigma_1^2,$$

it follows that

$$q_{i1}^{\dagger}\sigma_1^2 = q_{j1}^{\dagger}\sigma_1^2 + \rho\left(\frac{1}{1-\lambda}\right)\sigma_1\sigma_2.$$

Dividing by $\sigma_1^2$ gives

$$q_{i1}^{\dagger} = q_{j1}^{\dagger} + \frac{\rho\sigma_2}{(1-\lambda)\sigma_1}.$$

Using market clearing for asset 1,

$$\lambda q_{i1}^{\dagger} + (1-\lambda)q_{j1}^{\dagger} = 1,$$

and substituting for $q_{i1}^{\dagger}$ gives

$$\lambda\left(q_{j1}^{\dagger} + \frac{\rho\sigma_2}{(1-\lambda)\sigma_1}\right) + (1-\lambda)q_{j1}^{\dagger} = 1.$$

Collecting terms yields

$$q_{j1}^{\dagger} + \frac{\lambda\rho\sigma_2}{(1-\lambda)\sigma_1} = 1,$$

so that

$$q_{j1}^{\dagger} = 1 - \frac{\rho\sigma_2}{\sigma_1}\cdot\frac{\lambda}{1-\lambda}.$$

This establishes equation (15).

Substituting this expression into

$$q_{i1}^{\dagger} = q_{j1}^{\dagger} + \frac{\rho\sigma_2}{(1-\lambda)\sigma_1}$$

gives

$$q_{i1}^{\dagger} = 1 + \frac{\rho\sigma_2}{\sigma_1}.$$

This establishes equation (14).

The intermediary's first-order condition with respect to $m_i$ is

$$\frac{\partial u_i^{\dagger}}{\partial m_i} = \lambda q_{i1}\beta_1 - \gamma(a_1 - A_i) - cm_i = 0.$$

Using

$$a_1 = \mu_1 + m_i$$

yields

$$\lambda q_{i1}\beta_1 - \gamma(\mu_1 + m_i - A_i) - cm_i = 0.$$

Rearranging gives

$$(c + \gamma)m_i = \gamma(A_i - \mu_1) + \lambda q_{i1}\beta_1,$$

so that

$$m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda q_{i1}\beta_1}{c + \gamma}.$$

Substituting equation (14) gives

$$m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right).$$

This is the commitment-case influence level.

The previously determined no-commitment influence level is

$$m_i^{*} = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda}{c + \gamma}(\beta_1 + \beta_2).$$

Subtracting this from the commitment-case influence gives

$$m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) - m_i^{*}(q_{i1}^{*}, q_{i2}^{*}) = \left(\frac{\lambda}{c + \gamma}\right)\left(\beta_1\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right) - (\beta_1 + \beta_2)\right)$$

$$= \left(\frac{\lambda}{c + \gamma}\right)\left(\beta_1 + \frac{\rho\beta_1\sigma_2}{\sigma_1} - \beta_1 - \beta_2\right).$$

Simplifying the bracket yields

$$m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) - m_i^{*}(q_{i1}^{*}, q_{i2}^{*}) = \left(\frac{\lambda}{c + \gamma}\right)\left(\frac{\rho\beta_1\sigma_2}{\sigma_1} - \beta_2\right).$$

Rewriting over the common denominator $\sigma_1$ gives

$$m_i^{\dagger}(q_{i1}^{\dagger}, q_{i2}^{\dagger}) - m_i^{*}(q_{i1}^{*}, q_{i2}^{*}) = \frac{\lambda}{(\sigma_1(c + \gamma))}(\rho\beta_1\sigma_2 - \sigma_1\beta_2).$$

This establishes equation (17).

Using the intermediary's demand condition under commitment,

$$\beta_1 a_1^{\dagger} - p_1 = \tau q_{i1}^{\dagger}\sigma_1^2,$$

and equation (14),

$$q_{i1}^{\dagger} = 1 + \frac{\rho\sigma_2}{\sigma_1},$$

gives

$$p_1 = \beta_1 a_1^{\dagger} - \tau\sigma_1^2\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right).$$

Hence,

$$p_1 = \beta_1 a_1^{\dagger} - \tau(\sigma_1^2 + \rho\sigma_1\sigma_2).$$

Using

$$a_1^{\dagger} = \mu_1 + m_i^{\dagger}$$

and substituting the expression for $m_i^\dagger$ yields

$$a_1^\dagger = \mu_1 + \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right).$$

Collecting terms gives

$$a_1^\dagger = \frac{A_i\gamma + c\mu_1}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right).$$

Substituting this into $p_1$ yields

$$p_1 = \beta_1\left(\frac{A_i\gamma + c\mu_1}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)\right) - \tau(\sigma_1^2 + \rho\sigma_1\sigma_2).$$

This establishes equation (18).

From the direct investor's first-order condition for asset 2,

$$\beta_2 a_1^\dagger - p_2 = \tau\left(q_{j2}^\dagger\sigma_2^2 + \rho q_{i1}^\dagger\sigma_1\sigma_2\right).$$

Substituting equations (15) and (16) yields

$$\beta_2 a_1^\dagger - p_2 = \tau\left(\frac{\sigma_2^2}{1 - \lambda} + \rho\sigma_1\sigma_2\left(1 - \frac{\rho\sigma_2}{\sigma_1}\cdot\frac{\lambda}{1 - \lambda}\right)\right).$$

Expanding the second term gives

$$\beta_2 a_1^\dagger - p_2 = \tau\left(\frac{\sigma_2^2}{1 - \lambda} + \rho\sigma_1\sigma_2 - \frac{\lambda\rho^2\sigma_2^2}{1 - \lambda}\right).$$

Combining the terms in $\sigma_2^2$ yields

$$\beta_2 a_1^\dagger - p_2 = \tau\left(\left(\frac{1 - \lambda\rho^2}{1 - \lambda}\right)\sigma_2^2 + \rho\sigma_1\sigma_2\right).$$

Therefore,

$$p_2 = \beta_2 a_1^\dagger - \tau\left(\left(\frac{1 - \lambda\rho^2}{1 - \lambda}\right)\sigma_2^2 + \rho\sigma_1\sigma_2\right).$$

Substituting the expression for $a_1^\dagger$ gives

$$p_2 = \beta_2\left(\frac{A_i\gamma + c\mu_1}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)\right) - \tau\left(\left(\frac{1 - \lambda\rho^2}{1 - \lambda}\right)\sigma_2^2 + \rho\sigma_1\sigma_2\right).$$

This establishes equation (19).

This last section proves Proposition 5 by comparing the investors' delegation decision in the no-commitment case and in the commitment case.

Let $CE_j^*(\lambda)$ denote the certainty equivalent of a direct investor in the no-commitment case and let $CE_i^*(\lambda)$ denote the certainty equivalent from delegation in the no-commitment case.

Analogously, let $CE_j^\dagger(\lambda)$ denote the certainty equivalent of a direct investor in the commitment case, and let $CE_i^\dagger(\lambda)$ denote the certainty equivalent from delegation in the commitment case.

For an interior equilibrium, investors are indifferent between direct investment and delegation. Hence, the equilibrium fractions of delegating investors satisfy

$$\mathrm{CE}_i^*(\lambda^*) = \mathrm{CE}_j^*(\lambda^*) - \kappa$$

and

$$\mathrm{CE}_i^\dagger(\lambda^\dagger) = \mathrm{CE}_j^\dagger(\lambda^\dagger) - \kappa.$$

Equivalently, define the delegation gains by

$$\Delta^*(\lambda) = \mathrm{CE}_i^*(\lambda) - \mathrm{CE}_j^*(\lambda) + \kappa$$

and

$$\Delta^\dagger(\lambda) = \mathrm{CE}_i^\dagger(\lambda) - \mathrm{CE}_j^\dagger(\lambda) + \kappa.$$

As in Section A.4, the delegation gain is decreasing in $\lambda$, because a larger fraction of delegating investors increases the intermediary's incentive to exert costly influence, which lowers the relative attractiveness of delegation.

The equilibrium influence without commitment is given by

$$m_i^* = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda}{c + \gamma}(\beta_1 + \beta_2).$$

Hence,

$$\frac{\partial m_i^*}{\partial \beta_2} = \frac{\lambda}{c + \gamma} > 0.$$

Thus, for a given $\lambda$, a higher $\beta_2$ increases the intermediary's influence effort in the no-commitment case.

Using $a_1^* = \mu_1 + m_i^*$, it follows that

$$\frac{\partial a_1^*}{\partial \beta_2} = \frac{\lambda}{c + \gamma} > 0.$$

At the same time, the intermediary's influence effort generates the private cost term

$$\frac{1}{2}c(m_i^*)^2,$$

which is born only on the delegation side. Since $m_i^*$ is increasing in $\beta_2$, this term is also increasing in $\beta_2$. Direct investors, by contrast, benefit from the induced cash-flow effects without bearing these influence costs. Therefore, for sufficiently large $\beta_2$, the additional influence through asset 2 lowers the relative attractiveness of delegation in the no-commitment case. Hence,

$$\frac{\partial \Delta^*(\lambda)}{\partial \beta_2} < 0$$

for sufficiently large $\beta_2$.

This is the distortion caused by the additional influence channel through asset 2.

If the intermediary commits not to invest in asset 2, the corresponding influence level is

$$m_i^{\dagger} = \frac{\gamma(A_i - \mu_1)}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right).$$

Hence,

$$\frac{\partial m_i^{\dagger}}{\partial \beta_2} = 0.$$

Moreover, the commitment-case price equations are

$$p_1 = \beta_1\left(\frac{A_i\gamma + c\mu_1}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)\right) - \tau(\sigma_1^2 + \rho\sigma_1\sigma_2)$$

and

$$p_2 = \beta_2\left(\frac{A_i\gamma + c\mu_1}{c + \gamma} + \frac{\lambda\beta_1}{(c + \gamma)}\left(1 + \frac{\rho\sigma_2}{\sigma_1}\right)\right) - \tau\left(\left(\frac{1 - \lambda\rho^2}{1 - \lambda}\right)\sigma_2^2 + \rho\sigma_1\sigma_2\right).$$

In particular, $\beta_2$ does not enter $p_1$. In addition, for asset 2, an increase in $\beta_2$ raises expected cash flow and price by the same amount. Thus, no additional expected utility arises from asset 2.

It follows that, in the case of commitment, both the intermediary's and the direct investors' certainty equivalents are independent of $\beta_2$. Hence,

$$\frac{\partial CE_i^{\dagger}(\lambda)}{\partial \beta_2} = 0$$

and

$$\frac{\partial CE_j^{\dagger}(\lambda)}{\partial \beta_2} = 0.$$

Therefore,

$$\frac{\partial \Delta^{\dagger}(\lambda)}{\partial \beta_2} = 0.$$

So, unlike in the no-commitment case, changes in $\beta_2$ do not affect the delegation gain under commitment.

From the no-commitment case, a higher $\beta_2$ increases the intermediary's influence effort and thereby raises the influence-related costs borne on the delegation side. By contrast, under commitment, $\beta_2$ does not affect influence, the price of asset 1, or the investors' expected utilities. Hence, for sufficiently large $\beta_2$, delegation is less attractive without commitment than with commitment.

Moreover, the indifference conditions

$$CE_i^*(\lambda^*) = CE_j^*(\lambda^*) - \kappa$$

and

$$CE_i^{\dagger}(\lambda^{\dagger}) = CE_j^{\dagger}(\lambda^{\dagger}) - \kappa$$

show that a higher $\kappa$ lowers the attractiveness of direct investment. Since the gain from delegation is decreasing in $\lambda$, it follows that, for sufficiently large $\beta_2$ and $\kappa$,

$$\lambda^{\dagger} > \lambda^{*}.$$

This establishes Proposition 5.